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Original Articles.

CHYLOUS ASCITES WITH EOSINOPHILIA.

AN ANALYSIS OF REPORTED CASES.*

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PHILADELPHIA.

Entering on the subject of chylous ascites, it appears necessary that we consider both chylous and chyloid effusions into the peritoneal cavity, since these two forms of ascites are dependent on entirely different pathologic processes.

True chylous ascites results from the escape of chyle into the peritoneal cavity, this condition resulting from some obstruction to the chyliferous channels. A variety of pathologic conditions may be responsible for the effusion of chyle into the peritoneal cavity; and among these may be mentioned traumatism to the abdomen with rupture of the receptaculum chyli, or of the thoracic duct; obstruction to the flow of chyle through its normal channels, e. g., organic heart disease, as a result of which there is stasis of the innominate vein and venous congestion of the liver; venous thrombosis and peritoneal adhesions surrounding and compressing the thoracic duct, pressure of mediastinal tumors on the thoracic duct; abdominal tumors pressing on the receptacle for the chyle; tumors situated so as to offer obstruction to the flow of chyle in the smaller chyle branches. In this connection malignant growths and tuberculosis of any portion of the peritoneum and of the abdominal viscera may, at times, produce a true chylous ascites, yet such conditions are, as a rule, the cause of pseudochylous ascites. Theoretically, one would expect chylous ascites as a complication during the course of filariasis, although I have found reference to only three such cases.

CHYLIFORM ASCITES.

Chyliform ascites is dependent for its fat on the degeneration of epithelial cells, leucocytes and tissue débris. Such degenerated débris is found in the peritoneal fluid in cases where there are either cancerous or tuberculous nodules of the peritoneum. It is possible to have a true chylous ascites in conjunction with tuberculosis of the peritoneum, as is exemplified in the reported case under my own observation:

* Read in the Section on Pathology and Physiology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

DISTINCTIVE FEATURES OF CHYLOUS AND PSEUDOCHYLOUS FLUIDS.

TRUE CHYLOUS EFFUSION.	PSEUDOCHYLOUS EFFUSION.
1. The fluid consists of a fine emulsion containing but few cellular elements.	1. A less perfect emulsion containing large numbers of epithelial cells, and granular débris which is seen to display the various stages of degeneration, and to contain few fat droplets.
2. Accumulates rapidly after tapping.	2. Collects more slowly, varying with the exciting pathologic cause.
3. Contains sugar.	3. Sugar absent as a rule.
4. The melting point of the fat present in the fluid will be found to vary with the melting point of the fat taken as food.	4. Fatty foods have no effect on the melting fats contained in the fluid.
5. The amount of fat present is in direct relation with the amount of fats ingested.	5. Not affected by diet.
6. On standing a distinct creamy layer does not collect on the surface of the liquid.	6. A layer may collect which varies with the number of oil droplets present. A heavy sediment is liable to collect at the bottom of the liquid.
7. Fluid obtained by paracentesis may emit the odor of foods that have been ingested.	7. Does not emit the odor of foods.

While true chylous fluid always results from an admixture of chyle, Pagenstecher states that the milky appearance of ascitic fluid may depend on fatty degeneration of cells derived from the serous membrane, or on an alteration in an inflammatory exudate—an admixture of mucoid substances. This observer has found true chylous ascitic fluid to display a specific gravity of 1013; to contain 3.6 per cent. of albumin; 2.87 per cent. of fat; and 0.32 per cent. of sugar.

T. V., male, colored, age 11 years, was brought to me for treatment June 11, 1902, on account of loss of flesh and strength. At this time there was no evidence of ascites, the boy's general appearance was that of malnutrition, and he was decidedly nervous. The mother gave me the history that he had been complaining for some weeks past and had lost considerable flesh. His mind was becoming enfeebled, so that when he wandered away from home he was unable to return; he also lost his way about the house, and when sent to one portion of the building would, in many instances, go aimlessly about the house.

When first seen he complained of pain and soreness in the calves of the legs, loins and the arms. Pressure near the tendinous insertions of the calf muscles elicited tenderness and there appeared to be slight edema in the frontal region. I obtained a history of the boy having eaten a large amount of sausage, much of which had not been well cooked, and in view of this fact and the above symptoms I made an examination of his blood the following day.

Blood.—The hemoglobin was found to be 68 per cent.; red cells, 4,760,000, and white cells, 8,000 per c.mm. A differential leucocyte count (600 counted) gave:

	Per cent.
Polymorphonuclear cells	66.0
Basophilic polynuclear	1.5
Transitionals	0.5
Lymphocytes	2.5
Small lymphocytes	1.5
Large mononuclear	2.5
Eosinophiles	25.0
Myelocytes	0.5

During the counting of 600 leucocytes five nucleated red cells were observed (three normoblasts and two megaloblasts). The existence of a high-grade eosinophilia (25 per cent.), further supported my original suspicion that the boy was suffering from trichinosis. It was not until June 21, 1902 (nine days later), that I was able to persuade the family that an examination of the muscle tissue was necessary.

Examination of Muscle Tissue.—The skin was thoroughly cleansed with bichlorid solution and then with ether, and thoroughly injected with a 2 per cent. solution of cocain hydrochlorate. An incision two and one-half inches long was made over the tendinous insertion of the right soleus muscle, dividing all tissues down to the sheath of the tendon. The tendon was then grasped with a rat-toothed forceps and a longitudinal incision made for about one and one-half inches. The margins of the incised tendon were grasped by forceps and drawn apart by the assistant while I removed a small portion of the muscle.

This muscle tissue was at once placed in water, and later studied for the larval trichinæ, with negative results.

On June 24 (three days later) the wound appeared to be doing nicely and the boy was able to go about the room, but he complained of great weakness and shortness of breath, and of pain and tenderness over the abdomen. An examination of the blood showed red cells, 4,510,000; white cells, 11,500 per c.mm., and hemoglobin, 60 per cent. A differential leucocyte count gave: Eosinophiles, 10 per cent.; myelocytes, 2 per cent. All red cells stained pale, poikilocytosis was rather marked, and there was a slight amount of crenation of the red cells. Few microcytes and a similar number of macrocytes were to be observed.

Treatment and Results.—The patient was placed on predigested foods and tonics. July 22 the blood was again examined and gave the following: Red cells, 5,150,000, increase due to cyanosis(?); white cells, 5,600 per c.mm.; hemoglobin, 52 per cent. A differential leucocyte count gave:

	Per cent.
Polymorphonuclears	71.0
Lymphocytes (small)	13.0
Lymphocytes (large)	6.5
Large mononuclears	2.0
Eosinophiles	5.5
Transitionals	2.0

Film stained with eosin and hematoxylin showed decided decrease in the staining power of the red cells; and these cells were also greatly distorted. There were a number of microcytes and a few macrocytes present. Films stained with carbol-thionin displayed well-marked punctate basophilia.

Termination of Case.—The patient continued to grow weaker and the abdominal distension became more and more marked until he was unable to retain his food. There was great pain over the abdomen and repeated paroxysmal attacks of vomiting.

A blood examination, July 26, four days later, gave hemoglobin, 66 per cent.; red cells, 3,390,000; white cells, 3,600 per c.mm. The differential leucocyte count gave eosinophiles, 7.3 per cent. During the counting of 600 leucocytes twenty nucleated red cells were found, three of which were megaloblasts. The red cells stained feebly with eosin, were greatly distorted, and a number of cells, in addition to having given up their hemoglobin, were much swollen. These cells displayed little or no affinity for the eosin stain, except a narrow peripheral band of the protoplasm, which was stained of about normal intensity.

September 4, eleven days later, two days prior to death, the hemoglobin was found to have risen to 70 per cent.; the red cells 3,110,000, a loss of 2,280,000 per c.mm.; the white cells, 9,600. The stained blood presented practically the same change displayed in the previous examination, except that the red cells showed slightly greater affinity for the eosin stain. Distortion of the red cells and punctate basophilia were equally well marked at this time, and the eosinophiles composed 13.3 per cent. of the leucocytes.

Urine.—The urine was examined repeatedly and was always found to be mildly acid in reaction and to display a specific gravity between 1022 and 1028. The quantity of urine for the twenty four hours was about three pints. The amount of urea and phosphates present varied greatly in different specimens, but appeared to bear no direct correlation to the severity of his condition. Albumin and sugar were never present. On microscopic examination epithelial cells, few leucocytes, granular débris, crystals of uric acid, and of calcium oxalate were found.

Postmortem Examination.—The body showed decided emaciation, rigor mortis present. The abdomen somewhat distended; there was no swelling of the extremities, and the thorax presented nothing abnormal except emaciation. On opening the thoracic cavity the viscera were found to bear the normal relation to one another.

The pericardium contained about 20 c.c. of clear straw-colored fluid. Its surface appeared as normal. The heart was found to be normal for that of a child of 10 years.

Each pleural cavity contained about 20 c.c. of straw-colored fluid. In other respects the lungs and pleura displayed no gross pathologic conditions.

Abdominal Cavity: On opening the abdominal cavity it was found to be filled with about five and one-half pints of milky fluid. The intestines were covered with lymph-like exudate. In many places the intestines were matted together and portions of the chylous exudate were entirely separated from the general peritoneal cavity by rather well-organized adhesions. It was found necessary to break these adhesions before removing the chylous fluid. The peritoneum covering the intestine, mesentery and peritoneal wall was studded with fine tubercles, the largest of which was the size of a small pin's head; and on using a handglass the entire peritoneal surface was seen to be studded with minute tubercles.

The mesenteric lymph channels were greatly distended, and in many places stood out as small white wires underneath the peritoneum. Some of these distended vessels were almost white, while others were much darker in appearance; and this variation in shade appeared to depend, for the most part, on the amount of tissue overlying the distended lymph duct.

The renal and peritoneal lymphatic plexuses were everywhere greatly enlarged, and some of them were tortuous in their course and appeared to display fine nodules, but it was very difficult to show conclusively that these nodular masses were not small tubercles. The mesenteric lymph glands were slightly enlarged and on microscopic study gave evidence of tuberculous involvement.

The receptaculum chyli was not greatly distended, although it was possible to outline it rather easily. The thoracic duct was found with some difficulty, and was patulous throughout its entire length. At no point did the peritoneal adhesions appear to obstruct the lumen of the duct.

The liver was of normal size, its capsule studded with small tubercles. On section the parenchyma appeared to be fatty, pale and displayed few small tuberculous growths. The hepatic ducts were apparently normal. The spleen was but slightly enlarged, and its capsule showed many tubercles, which on section were found to extend into the splenic pulp.

The kidneys were surrounded by plexuses of greatly distended lymph channels. On section the right kidney was somewhat cyanosed and contained two small tubercles. The left kidney was like its fellow.

The adrenals were apparently normal.

Reports of 126 cases were collected from the literature and these in conjunction with two additional cases have been tabulated as to age, sex, existing abdominal conditions, treatment and result (Table 7).

The cases have been classified also as to exciting cause, e. g., Table 1 setting forth the characteristic features, primary seat of disease, and remarks in 24 cases of chylous ascites complicating carcinoma; Table 2 describing in a like manner 17 cases resulting from tuberculosis; Table 3, 11 cases accompanying cardiovascular conditions; Table 4, 8 cases due to disease of the liver; Table 5, 7 cases following puerperal sepsis; Table 6, 4 cases, the result of congenital cysts.

In addition, there were three instances where chylous

ascites followed infection with the filaria sanguinis hominis. Obstruction to the thoracic duct was observed postmortem in 11 of the cases, and the duct or receptaculum was found to be ruptured as the result of traumatism in 7 of the cases.

Sixty-one of the cases were females, 50 males, and in the remaining reports the sex was not given. A further analysis as to the number of cases occurring at the various periods in life gave 6 under 1 year of age; 3 between 1 and 5 years; 13 between 5 and 10 years; 9 between 10 and 20 years; 12 between 20 and 30 years; 34 between 30 and 50 years; and 24 after the age of 50.

TABLE NO. 1.

CASES OF CHYLOUS AND CHYLIFORM ASCITES COMPLICATING CANCER OF THE ABDOMINAL VISCERA, PERITONEUM, OR WITH METASTASIS TO ABDOMINAL STRUCTURES.

No. 1. The peritoneal effusion was purely chylous. Thought to have been caused by pressure on the thoracic duct. The growth involved the peritoneum surrounding the thoracic duct.

No. 2, 39 years, female. Effusion chylous. Pressure on the thoracic duct the result of metastasis, and consequent enlargement of the mesenteric glands.

No. 3, 39 years, female. Character of effusion not stated. There were present infiltration of the stomach and also of the mesentery with occlusion of the lacteals.

No. 4, 56 years, female. Carcinoma of the stomach which caused questionable pressure on the thoracic duct. The peritoneum was normal, as was also the receptaculum chyli. The kidneys gave evidence of chronic interstitial nephritis.

No. 5, 52 years, female. Carcinomatous growth, probably from the pancreas, causing pressure on the thoracic duct. Peritoneum not involved.

No. 6, 57 years, female. Carcinoma of the stomach, which probably pressed on the thoracic duct. No mention is made of involvement of the peritoneum.

No. 7, 43 years, female. Cancer of the pancreas with involvement of the peritoneum. Pressure on the thoracic duct questionable.

No. 8. Cancerous involvement of the mesentery—secondary (?). There was present obstruction to the lacteals.

No. 9, 58 years, male. Malignant disease of both the peritoneum and of the pleura. Probably carcinoma.

No. 10. The lesions described point to cancer of the mesenteric portion of the peritoneum. These changes may have been secondary (?).

No. 11, 42 years, male. Metastatic carcinoma of the peritoneum. There was enlargement of the abdominal glands and thought to be pressure on the thoracic duct. The peritoneal fluid was regarded as chylous.

No. 12, 59 years, male. Cancerous infiltration of the liver, mesenteric glands and peritoneum. The peritoneal fluid was chyliform in character.

No. 13, 44 years, female. Metastatic carcinoma of the peritoneum; effusion probably chyliform.

No. 14, 50 years, female. General carcinoma of the mesentery and of the peritoneum, with questionable obstruction to the thoracic duct.

No. 15, 59 years, female. Primary carcinoma of the gall bladder, with secondary involvement of the liver. There was also cancerous involvement of the mesenteric glands.

No. 16, 67 years, female. Carcinomatous involvement of the peritoneum. The report was now clear as to pressure on the thoracic duct. The ascitic fluid was regarded as chylous.

No. 17, 39 years, male. Metastatic carcinoma of the peritoneal glands. There was pressure on the thoracic duct, as the result of glandular enlargement. The fluid was chylous.

No. 18, 35 years, female. Carcinoma involving the peritoneum. Obstruction to the thoracic duct, probably caused by adhesions. The peritoneal fluid was regarded as chylous.

No. 19, 67 years, female. Diffuse carcinoma of the peritoneum. There was no evidence of pressure on the receptaculum chyli or on the thoracic duct.

No. 20, 47 years, female. Carcinoma of the ovary with metastasis to the adjacent peritoneum.

No. 21, 39 years, female. Carcinoma of the stomach with secondary involvement of the peritoneum and contiguous structures. Occlusion of the thoracic duct.

No. 22, 53 years, male. Obstruction of the smaller chyle vessels, as the result of metastatic carcinoma of the mesentery.

No. 23. Gastric carcinoma. It was thought that the thoracic duct had become involved in the growth. Chylous fluid escaped into the peritoneal and pleural cavities.

No. 24. Cancerous growth of the abdomen. The thoracic duct was compressed by the growth and there was a chylous effusion into both the peritoneal and pleural cavities.

TABLE NO. 2.

CASES OF CHYLOUS AND CHYLIFORM ASCITES COMPLICATING TUBERCULOSIS.

No. 1, 59 years, male. Tuberculosis of the lung and of the peritoneum. Diagnosis confirmed at autopsy.

No. 2, 59 years, male. Pulmonary tuberculosis with tuberculosis of the peritoneum. Ascitic fluid milky.

No. 3, 8 years, female. Tuberculosis of the peritoneum with a large chyliform effusion into the peritoneal sac. Tuberculous involvement of the lung found at autopsy.

No. 4, 27 years, female. There had been involvement of the glands of the neck during childhood, and later tuberculosis of the lung. At postmortem the abdominal cavity contained 3,400 c.c. of chyliform fluid. There were present extensive peritoneal adhesions.

No. 5, 33 years, female. The condition of the peritoneum appeared to be primary, and from the description given it was probably of tuberculous nature. Fluid regarded as chylous (?).

No. 6, 10 years, female. Reported as a case of tubercular peritonitis, from which 5,000 c.c. of milky fluid were removed during life.

No. 7, 39 years, female. Tuberculosis of the peritoneum. Everywhere the peritoneum was found to be studded with small tubercles. There were also extensive peritoneal adhesions.

No. 8, 12 years, female. There had been tuberculosis of the superficial glands for a long period. Miliary tuberculosis ensued and was complicated with chyliform ascites.

No. 9, 13 years, male. History of pulmonary tuberculosis, with secondary involvement of the peritoneum. Character of fluid probably chyliform.

No. 10, 7 years, female. At postmortem the peritoneum and peritoneal glands were found to be tuberculous. On section many of these glands were caseous, and contained the characteristic features of tuberculous disease. The fluid was referred to as being oily.

No. 11, 7 years. At postmortem the mesentery was found to be thickened. There were also nodules in the abdominal cavity which, on section, presented the characteristic features of tubercles.

No. 12, 59 years, male. Tuberculosis of the peritoneal sac following tuberculosis of the lung.

No. 13, 10 years, male. There was found at autopsy a chronic tuberculous process involving the peritoneum. At various tappings 6.350 c.c. of fluid were removed.

No. 14, 58 years, female. Tuberculosis of the genital tract, followed by tuberculosis of the peritoneum and of the liver. The patient was tapped four times, and 3,250 c.c. of milky fluid removed.

No. 15, 10 years, male. Autopsy disclosed tuberculosis of the peritoneum, and many adhesions. The chylous effusion was thought to have been caused by adhesion constricting the receptaculum chyli. About 1,000 c.c. of peritoneal fluid were removed at section.

No. 16, 45 years, female. There was present at autopsy miliary tuberculosis of the pleura, peritoneum and pericardium. The patient was tapped repeatedly, and a large quantity of fluid removed from the different sacs at each tapping; the specific gravity of the fluid was 1015.

No. 17, 11 years, male, negro. Tuberculosis of the peritoneum and obstruction to the lacteals. Peritoneal adhesions which divided the peritoneal cavity into many compartments. Peritoneum covered with plastic exudate. Omentum shrunken; 1,200 c.c. of chylous effusion; specific gravity, 1014. The blood showed a high-grade eosinophilia.

TABLE NO. 3.

RECORDED CASES IN WHICH CHYLOUS ASCITES WAS FOUND TO FOLLOW VALVULAR HEART DISEASE.

No. 1, 43 years, female. At autopsy there was found to be mitral and tricuspid insufficiency. The thoracic duct was obstructed at its point of opening into the vein, the result of a large fibrinous clot. The lumen of the thoracic duct was expanded and its walls thickened; the vein was also dilated at this point.

No. 2, 3 months, male. There existed congenital insufficiency of the cardiac valves.

No. 3, female. History of valvular heart disease of long duration. There was present during life stasis of the venous system.

No. 4, male. Valvular heart disease with venous stasis.

No. 5, 24 years, male. General arterial sclerosis; insufficiency of the cardiac valves. Chronic parenchymatous nephritis.

No. 6, 19 years, male. The thoracic duct was obstructed near its opening into the vein by pressure the result of a fibrinous clot surrounding vegetation which developed from the subclavian vein. At postmortem the receptaculum chyli was found to be ruptured.

No. 7, 19 years, male. Pressure on the thoracic duct by a clot occupying the subclavian vein. This clot was light in color, ragged and rather well organized. There were present, antemortem, cardiac insufficiency and venous stasis.

No. 8, 24 years, male. At autopsy the left subclavian vein was found to contain a large clot. The symptoms were those of cardiac insufficiency, with cardiac dilatation (?).

No. 9, 80 years, male. The reporter of this case attributed the chylous ascites to pressure on the thoracic duct, the result of adipose tissue. From the general description of the case, and in view of the fact that there was no autopsy, I have classified it as one of cardiac insufficiency.

No. 10, male. At autopsy there was found to be embolus of the pulmonary artery. There was also a questionable statement as to cardio-vascular disease. The thoracic duct was ruptured.

No. 11, 8 years, male. Disease of mitral and aortic valves. There had been three attacks of acute rheumatism several years before.

TABLE NO. 4.

CHYLOUS ASCITES COMPLICATING DISEASE OF THE LIVER.

No. 1, male. Reported as a case of disease of the liver (?) complicated with chylous ascites.

No. 2, 28 years, female. Fatty degeneration of the liver, with fatty effusion into the peritoneal cavity.

No. 3, 47 years, male. Reported as a case of atrophic cirrhosis of the liver.

No. 4, 39 years, male. Atrophic cirrhosis of the liver. History of alcoholism.

No. 5, 38 years, male. Cirrhosis of the liver, with a history of alcoholism.

No. 6. Cirrhosis of liver with a history of alcoholism.

No. 7, 52 years, female. Cancer of the liver, probably secondary to cancer of the peritoneum.

No. 8, male. Cirrhosis of the liver; cause obscure.

TABLE NO. 5.

RECORDED CASES OF CHYLOUS AND CHYLIFORM ASCITES COMPLICATING PUERPERAL SEPSIS.

No. 1, female. There was abortion with delivery of twins. The patient did badly, and probably had puerperal sepsis. The report of the autopsy does not throw further light on the case.

No. 2, female. Following a miscarriage chylous ascites developed. More than 7 liters of chylous fluid were removed by tapping. The patient made an uninterrupted recovery.

No. 3, female. Following labor (with twins) a questionable abdominal tumor developed, which proved to be chylous ascites.

No. 4, 55 years, male. Following an unusually difficult labor there developed abdominal distension, which proved to depend on a chylous cyst. This cyst was evacuated by aspiration, and recovery followed.

No. 5, female. During the first week following delivery the mammary secretion lessened and became abnormal. Other evidences of puerperal sepsis appeared to be wanting. The chylous effusion was removed by aspiration and recovery followed.

No. 6, 24 years, female. Following puerperal sepsis there was abdominal distension due to chylous ascites. The abdominal cavity was drained through the vagina and five pints of chylous fluid recovered. Recovery followed.

No. 7, 33 years, female. Abortion at the third month followed by sepsis, with a temperature of 104 degrees, and a pulse of 140 per minute. Chylous fluid accumulated in the peritoneal cavity. Dr. George I. McKelway opened the peritoneal cavity through the posterior cul-de-sac, and one and one-half pints of chylous fluid escaped. Recovery.[1]

TABLE NO. 6.

CHYLOUS ASCITES THE RESULT OF CONGENITAL CYSTS.

No. 1, birth, female. A large congenital cyst ruptured, probably during birth. The chylous effusion into the peritoneal cavity is said to have been large. Fluid removed by tapping and the child made a perfect recovery.

No. 2, male. Laparotomy for removal of a large tumor which proved to be a chylous cyst. Patient made an uneventful recovery.

No. 3, 5 months, female. The patient was tapped and chylous fluid removed. Laparotomy showed the mesentery to contain several chylous cysts. The condition was probably congenital. Convalescence was soon established and recovery followed.

No. 4, 5 weeks, male. Reported as a case of lymphangioma of the peritoneum. The fluid was evacuated by aspiration, and for this reason it appears probable that this case should be considered as one of chylous ascites due to a congenital cyst. Recovery.

TABLE NO. 7.

REFERENCE TO CHYLOUS ASCITES.

No. 1, female. Obstruction of lymphatic glands and vessels. Medicine and tapping; died.

No. 2, 2 years, male. Compression of thoracic duct near subclavian vein by large tumor, producing rupture of lacteals. Tapping; died.

No. 3, 24 years, female. Childbed, rupture of chyle channels, five pints milky fluid escaped. Counter-opening; recovery.

No. 4, 39 years, male. Calculus in receptaculum chyli. Tapping; died.

No. 5, female. Effort to raise burden, with questionable rupture. Tapping.

No. 6, female. Abnormal mammary secretion during first week of puerperium. Medicine and tapping; recovery.

No. 7, female. Metrorrhagia, miscarriage, unusual exercise, 7.3 liters of chylous fluid were removed; s. g. 1022. Tapping; recovery.

No. 8, 29 years, female. Arrest of secretion of milk from mammary glands and derangement of intestinal canal. Tonics; recovery.

No. 9, female. Premature birth of twins, septic infection questionable. Found at autopsy.

No. 10, 8 years, female. Rupture of lacteal vessels; protracted illness. Tapping; recovery.

No. 11, male. Supposed to be liver disease with large chylous effusion into peritoneal cavity. Medicine; died.

No. 12, female. Abdominal tumor following pregnancy with twins. Rupture at navel; died.

No. 13, 20 years, male. Tumor of mesenteric glands, lacteals large and tortuous. Died.

No. 14, 59 years, male. Chronic bronchitis, asthma, tuberculosis. Questionable tuberculosis of peritoneum. Died.

No. 15, 59 years, male. Tuberculosis. Died.

No. 16, 28 years, female. Chronic peritonitis with fat in effusion. Fatty degeneration of liver and lipemia. Died.

No. 17, 8 years, female. Symptoms of tuberculous peritonitis, numerous tubercle in lungs. Died.

No. 18. Milky fluid obtained from abdomen, cause questionable.

No. 19, 62 years, female. Occlusion of thoracic duct with soapy peritoneal fluid; cause obscure.

No. 20, 19 years, male. Partial obstruction of duct near its termination due to adhesions and pressure. Died.

No. 21, 24 years, male. Left subclavian vein plugged with ragged clot. Tapping; died.

No. 22, 43 years, female. Mitral and tricuspid insufficiency, thoracic duct plugged at outlet with pale and red fibrous coagula; walls thickened; lumen dilated with thrombi. Died.

No. 23. Rupture of chyle vessels from pressure of tumor. Died.

No. 24, 27 years, female. Scrofula, pulmonary tuberculosis, oily ascites, peritoneal adhesions, 3400 c.c. of fluid were recovered. Died.

No. 25, 2 months. Abdominal tumor, causing rupture of thoracic duct. Tapping; died.

No. 26, 30 years, female. Obstruction of thoracic duct due to infarction. Thickening of ureters, 13,500, c.c. of chylous fluid were recovered, probably by repeated tappings. Tapping; died.

No. 27, 50 years, male. Traumatic rupture of thoracic duct, effusion into peritoneal and pleural cavities, 20,000 c.c. of chylous fluid were recovered by a number of tappings. Tapping; died.

No. 28, 33 years, female. Primary peritonitis with hydropsadiposus and 8,000 c.c. of chylous fluid were removed. Tapping;

No. 29, 10 years, female. Tuberculous peritonitis, 5,000 c.c. of chylous fluid were recovered. Tapping; died.

No. 30, female. Chylous fluid vomited; also found in peritoneal and pleural cavities; cause obscure. Tapping; recovery.

No. 31, 39 years, female. Peritoneum studded with tubercles. Tapping; died.

No. 32, 39 years, female. Puncture of chyle vessels by parasites. Tapping.

No. 33, birth, female. Rupture of a congenital chylous cyst with large chylous effusion. Tapping; recovery.

No. 34, 11 years, male. Ascites following infectious diseases; cause obscure. Tapping. Died.

No. 35, 50 years, female. Rupture of mesenteric and lymphatic lacteals; cause questionable. Tapping.

No. 36, 25 years, male. Syphilis. Tapping; died.

No. 37, 12 years, female. Scrofula and miliary tuberculosis, milky fluid containing fat and the fatty acids. Died.

No. 38, 47 years, male. Cirrhosis of liver; abdominal fluid milky and contained fat. Died.

No. 39, 39 years, male. Alcoholism with cirrhosis of liver; fluid first two tappings ordinary, afterward milky and fatty. Tapping; died.

No. 40, 8 years, male. History of acute attacks of rheumatism, valvular heart disease. Tapping; died.

No. 41, 2 years 8 months, male. Syphilis. The patient had diabetes, 13,000 c.c. of fluid were removed. Four tappings; died.

No. 42, 55 years, male. Chylous cyst of abdomen when fluid was found following hard labor. Tapping; recovery.

No. 43, 3 months, male. Chronic peritonitis with congenital heart disease. Tapping; recovery.

No. 44, 13 years, male. Pulmonary tuberculosis with tuberculosis of the peritoneum and chylous peritoneal effusion. Tapping; died.

No. 45, 61 years, male. Extensive peritoneal effusion of chylous fluid. Exciting cause undetermined. Tapping; died.

No. 46, 19 years, female. Violent exercise followed by an effusion of chylous fluid. Laparotomy; recovery.

No. 47, 39 years, male. Chylous cyst of the mesentery, which was evacuated. Laparotomy; recovery.

No. 48, 80 years, male. Stasis of the thoracic duct induced by pressure exerted from an accumulation of fatty tissue. Chylous exudate into the peritoneum recovered at postmortem. No autopsy; died.

No. 49, 47 year, male. Chylous effusion into the peritoneal cavity. Exciting cause questionable. History of alcoholism. Tapping.

No. 50, 38 years, male. Alcoholism, cirrhosis of liver with chylous effusion. Tapping.

No. 51, 11 years, child. Sarcoma of omentum. Died.

No. 52, 28 years, male. Traumatic rupture of receptaculum chyli. Tapping; died.

No. 53. Carcinoma of peritoneum with obliteration of thoracic duct as the result of pressure (?). Tapping; died.

No. 54, 39 years, female. Carcinoma of mesenteric glands, with pressure on the thoracic duct and receptaculum chyli. Tapping; died.

No. 55, 61 years, male. Chronic lymphangitis of the thoracic duct. Tapping; died.

No. 56, 39 years, female. Cancerous infiltration of the lymphatics of the stomach, intestine and mesentery. Lacteals were occluded. Tapping; died.

No. 57. Hepatic cirrhosis and chronic peritonitis with obstruction of lacteals and stasis. Tapping; died.

No. 58, 52 years, female. Peritoneal carcinoma with involvement of the liver. There was obstruction of the lacteals of the mesentery. Tapping; died.

No. 59, 5 months, female. Numerous congenital (?) cysts of the mesentery which were excised and drained. Tapping and laparotomy; recovery.

No. 60, 42 years, female. Thought to have been either cancer or tuberculosis of the peritoneum. Tapping; died.

No. 61, 61 years, male. The renal and peritoneal lymph plexuses were greatly enlarged, as were also those of the intestine. These lymph vessels were tortuous in their course, constricted in places and displayed a varicose appearance. Tapping; died.

No. 62, 34 years, female. No autopsy, large peritoneal effusion of chylous fluid. Died.

No. 63, 54 years, male. Profuse peritoneal effusion of chylous fluid, which reappeared rapidly after tapping. Said to have been tapped 49 times; died.

No. 64, 31 years, female. Thought to have been a minute perforation of thoracic duct. There was also effusion into the pleura. The abdominal effusion of chylous material was removed and soon reappeared after each removal. Five tappings; died.

No. 65, 61 years, female. Cause questionable, supposed to be rupture of lacteals as the result of traumatism, or possibly the condition depended on infection through the wound. Tapping; died.

No. 66, 41, male. Exciting cause not known; fluid reappeared after tapping. Two tappings; died.

No. 67, 56 years, female. No lesion found in the chyliferous vessels. Gastric cancer present and sclerotic kidney. Two tappings; died.

No. 68, 53 years, female. Carcinoma involving the thoracic duct, but no sight of rupture could be detected. Laparotomy; died.

No. 69, female. Cause doubtful; fluid reappeared after tapping. Tapping; died.

No. 70, 57 years, female. Cancer of the stomach; thoracic duct could not be found, probably involved in the growth. Tapping; died.

No. 71, 21 years, female. No autopsy. Thought to have been caused by pressure on the thoracic duct. Tapping; died.

No. 72, 18 years, female. Angiosarcoma of ovaries, fluid accumulated rapidly after removal. Three tappings and laparotomy; died.

No. 73, 46 years, male. Enlargement of the abdomen with obliteration of the thoracic duct. There was also chylous effusion into the pleural cavity. Tappings and medicines.

No. 74, 7 years, female. There was enlargement of the mesenteric glands, many of them showing degeneration and chalky deposits on section. Died.

No. 75, 21 years, female. Prolonged attack of chlorosis. The effusion of chylous liquid into the abdominal cavity was thought to be due to pressure on the lymph channels by enlarged spleen. Tappings and medicines; recovery.

No. 76, child. Abdominal cavity filled with milky fluid evidently derived from rupture of chyliferous vessels. No lesion of the vessels was found. Died.

No. 77, 7 years, male. Mesentery cirrhosed and showed many areas, which on sectioning were white and chalk-like—tubercles (?). Died.

1. I am not aware that Dr. McKelway has reported this case and it should be credited to him. I was his resident physician at the time of this observation, and made a chemical and microscopic study of the chylous fluid.

No. 78, 19 years, male. Fibrinous vegetations attached to intima of subclavian vein; partial obliteration of thoracic duct near its outlet; rupture of receptaculum chyli. Died.

No. 79, 24 years, male. Left subclavian and its effluent branches plugged with a light colored and ragged blood clot. No lesion of abdomen found. Tapping; died.

No. 80, 9 years, male. General health fair, no cause discovered. Twenty-eight pints of fluid were recovered from the abdominal cavity during the period of 28 days. The fluid was chylous and had a specific gravity of 1015. Tapping; under observation when reported.

No. 81, 2 years, male. Previous health good, no cause discovered. Abdominal fluid milky and contained lymph cells. Tapping; under observation when reported.

No. 82, male. Chronic lymphangitis involving the peritoneal lymph channels. Died.

No. 83, 59 years, male. Pulmonary tuberculosis, with probable involvement of the peritoneum (?). Died.

No. 84. Lesion of the thoracic duct. (I was unable to ascertain the exact nature of this lesion from an abstract.) Died.

No. 85. Chronic peritonitis with obstruction of the lacteals of the mesentery, resulting in a questionable chylous effusion. Died.

No. 86, 43 years, female. Cancer of the pancreas with cancerous involvement of the peritoneum, 1400 c.c. of chylous fluid were removed at operation. Laparotomy; died.

No. 87, male. Rupture of the thoracic duct; there was also an embolus of the pulmonary artery. Died.

No. 88, female. Chylous effusion—valvular heart disease with stasis of the vena cava.

No. 89, male. Hepatic cirrhosis with chylous effusion into the peritoneum. Died.

No. 90, male. Chylous effusion following valvular heart disease. Died.

No. 91, 54 years, female. Lymphangitis involving peritoneal vessels. Died.

No. 92, male. Questionable chylous. Tapping; died.

No. 93, 10 years, male. Chronic tubercular peritonitis with chylous effusion of 6,350 c.c. of fluid. Tapping; died.

No. 94. Obstruction to the thoracic duct of questionable origin. died.

No. 95. Cancer of the mesentery with obstruction of lacteals. died.

No. 96, 56 years, male. Cause unknown; 28,700 c.c. of fluid were recovered. Five tappings; died.

No. 97, 58 years, female. Tubercular peritonitis, tuberculosis of liver and of the genitalia; 3,250 c.c. of fluid were removed. Four tappings; died.

No. 98, 58 years, male. Malignant lymphoma of peritoneum and pleura; 17,750 c.c. of milky fluid were removed from both serous cavities. Three tappings; died.

No. 99. Malignancy of the peritoneum with chylous effusion.

No. 100. Sarcoma of the mesentery with removal of 50,000 c.c. of chyliform fluid. The S. G. 1011-1014. Four tappings; died.

No. 101. 42 years, male. Carcinoma with metastasis to the peritoneum, mesenteric glands, etc., with pressure on the thoracic duct; 9,600 c.c. of chylous fluid were removed. S. G. 1015-1017. Two tappings; died.

No. 102, 59 years, male. Carcinoma with metastasis to the lymph glands, liver and peritoneum; 400 c.c. of chyliform fluid were removed. S. G. 1020. The fats averaged .31 per cent. Section; died.

No. 103, 24 years, female. Traumatism with rupture of the chyle vessels. Died.

No. 104, 35 years, female. Chronic peritonitis, uterine fibroid with chylous effusions. Tapping; recovery.

No. 105, 35 years, female. Cancerous peritonitis; 8,500 c.c. of chylous fluid removed. Four tappings; died.

No. 106, 67 years, female. Peritonitis and general carcinomatosis; 6,000 c.c. of fluid were removed. Three tappings; died.

No. 107, 67 years, female. Chronic peritonitis with distention of the thoracic duct and chyle receptacle. Three tappings; died.

No. 108, female. Chronic peritonitis with cirrhosis of the liver. Tapping; recovery.

No. 109, 15 months, female. Chronic peritonitis. Nineteen tappings; recovered.

No. 110, 10 years, female. Tuberculosis of the peritoneum with distention of the receptaculum chyli; one gallon of fluid was recovered. Laparotomy; recovered.

No. 111, 46 years, female. Valvular heart disease with parenchymatous nephritis; 1,200 c.c. of fluid were removed. Died.

No. 112, 47 years, female. Cancer of the ovary. S. G. of fluid 1011-1015. Died.

No. 113, 44 years, female. Carcinoma with metastasis to the peritoneum and large chylous effusion; 17,000 c.c. of chyliform fluid were removed. S. G. 1020, containing 3.98 per cent. of fat. Three tappings; died.

No. 114, 50 years, female. Cancer of the peritoneum and mesentery; 19,000 c.c. of milky fluid were removed antemortem. Tapping; died.

No. 115, 45 years, female. Miliary tuberculosis of the peritoneum, pleura and pericardium, with obstruction to the chyle vessels; 10,000 liters of milky fluid were removed. S. G. 1015. Three tappings; died.

No. 116, 59 years, female. Carcinoma of the gall bladder with cancerous involvement of the mesentery and liver. S. G. 1012; the fat averaged 1.15 per cent. Three tappings; died.

No. 117, 10 years, male. Enlargements of retroperitoneal glands, with pressure on the thoracic duct and a large chylous effusion. Section; died.

No. 118, 67 years, female. Carcinoma of the peritoneum with 17,500 c.c. of chylous fluid. S. G. 1020. Four tappings; died.

No. 119, 39 years, female. Gastric carcinoma with involvement of the liver, peritoneum and infiltration causing obstruction to the thoracic duct; 4,500 c.c. of fluid were removed. S. G. 1012. Tapping; died.

No. 120, 36 years, male. Carcinoma with metastasis to the retroperitoneal gland and to the mesentery with pressure on the thoracic duct; 7,300 c.c. of chylous fluid were removed. S. G. 1012. Tapping; died.

No. 121, 53 years, male. Cancer of the mesentery due to metastasis, obstruction of the smaller chyle vessels; 600 c.c. of chylous fluid were removed. Section; died.

No. 122. Gastric carcinoma with thrombosis of the venous system and resulting in obstruction to the thoracic duct with an effusion of chylous fluid into the pleura. Died.

No. 123. Carcinoma involving the thoracic duct, which was probably compressed in the mass. There was a chylous effusion into both the peritoneal and pleural cavities. Died.

No. 124, 5 weeks, male. Lymphangioma of the peritoneum; 750 c.c. of chylous fluid were removed. The specific gravity of the fluid was 1007, and it contained 4.756 per cent. of fats. Tapping; recovery.

No. 125, 35 years, male. Chylous ascites with chyluria. The patient had lived in South America and filaria were found in blood, but not in the chylous fluid. Tapping; recovery.

No. 126, 16 years, female. Chronic nephritis, with marasmus and thrombosis of the innominate veins. There was a large chylous effusion into the peritoneum. Its specific gravity was 1005. Two tappings; died.

No. 127, 11 years, male. Tuberculosis of the peritoneum and obstruction of the lacteals. Thoracic duct patulous. The fluid was walled off in many small compartments by firm and plastic adhesions. Omentum shrunken and its lacteals tortuous. Chylous effusion 1,200 c.c. at autopsy. S. G. 1014. Medicines; died.

No. 128, 33 years, female. Puerperal sepsis with pelvic peritonitis. One and one-half pints of chylous fluid were removed from the peritoneal cavity. Specific gravity of the fluid 1014. Puncture through the vaginal wall; recovery.

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Radioactive Wool.—Cotton-wool which has been submitted to the action of radium emanation is convenient for easy distribution over the body; it may be packed in hermetically sealed jars, as it loses radioactivity very slowly, and can be sent to any distance desired. From a few milligrams of radium, according to the *Medical Age*, a large quantity of wool may be prepared, and thus widely extend the use of a small amount of radium, whose cost is so great as to interfere with its widespread use. The effects of the radium emanation and of the direct action of the radium are in all probability the same. Radioactive wool, therefore, may become a stock pharmaceutic preparation.

THE ENVIRONMENT AND VISUAL REQUIREMENTS OF RAILWAY ENGINEMEN AND FIREMEN.

PERSONAL OBSERVATIONS FROM AN ENGINE CAB.*

NELSON MILES BLACK, M.D.

MILWAUKEE, WIS.

Of the total railroad mileage of the United States (approximately 302,000 miles), nearly 13 per cent., or 39,263.9 miles,[1] are using a block system of signaling for the protection and spacing of trains. This system of controlling trains requires, in the daytime, the determination of the position of a semaphore arm, about 4 feet long by 6 inches wide, or distinguishing the color of a disc about 17 inches in diameter, displayed on a pole about 26 feet high. At night the color of a 6-inch lens, lighted by a kerosene lamp, must be observed. These must be determined by the enginemen at sufficient distance in which to control their trains. Mr. R. Quayle, superintendent of motive power of the Chicago & Northwestern Railway, kindly furnishes the following data, which are the result of some recent experiments in controlling fast trains:

With the ordinary brake, 70 pounds train-line pressure, a six-car train running 70 miles an hour can be stopped inside of 2,000 feet, approximately 1,900 feet, and when the high-speed brake, 110 pounds train-line pressure, is used on the same train and running at the same speed, the train can be stopped in 1,450 feet.

It will be seen that a signal must be read at not much less than one-half mile (2,640 feet), as a few seconds are necessary for the engineman to shut off his steam and apply his air, and in each one of these seconds a train, traveling 70 miles an hour, is covering 88 feet.

There is no question that next to the necessary practical knowledge of his engine, the vision and color perception of enginemen is the most important.

The latest obtainable statistics of railroad accidents (June 30, 1902, from the report of the Interstate Commerce Committee),[2] gives the terrific number of 8,588 killed and 64,662 injured from June 30, 1901, to June 30, 1902. Collisions and a large percentage of derailments are the only class of accidents in which defective vision or color perception can be regarded as a causative factor. Collisions caused 617 deaths and 5,350 injuries, derailments caused 293 deaths and 2,504 injuries. There seems to be no classification of accidents up to date which gives those caused by defective vision or color perception.

During 1902, in Illinois, there were 138 derailments due to trains running against signals.

None of the writers on the visual requirements of trainmen have given the subject of their environment much, if any, consideration. Dr. H. B. Young's paper,[3] "The Visual Requirements of Trainmen, Based on Personal Observations from an Engine Cab," was the first to do this, and suggested to me that deductions from a large series of observations made in the same environment and under the same conditions as enginemen work, would be of material value. I was governed in

* Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

EDITOR'S NOTE.—A portion of this article, including eight illustrations, is omitted. This will explain the absence of certain footnotes, etc. The entire article appears in the transactions of the section and in the author's reprints.

1. Railroad Gazette, Jan. 22, 1904, p. 63.
2. Report of Interstate Commerce Commission, 1903.
3. Young, Dr. H. B.: The Visual Requirements of Trainmen, Based on Personal Observations from an Engine Cab, Annals Ophth., January, 1904.

these experiments by the standards required in the reports adopted by the American Medical Association, the American Ophthalmological Society, and the American Academy of Railway Surgeons. A careful examination of my eyes resulted in vision with either eye (without glasses) 6/V (20/15), perfect color vision and muscular balance, refraction O. D. +.50 cyl. ax. 85°, O. S. +.62 cyl. ax. 135°.

DAY SIGNALS.

Trainmen and enginemen on steam roads are governed in their manipulation or movement of trains very largely by signals.

Railway signaling is of two kinds, visible and audible. This paper will deal only with visible signals.

Visible signals are divided into two grand classes, fixed and moving. This division also applies to night as well as day signals. It is quite generally accepted that red designates danger, green or yellow caution, and white or green clear. This scheme usually applies to flags (Fig. 1), switch targets (Fig. 2), gates (Fig. 3) and bars, but color in block, interlocking and signal department work does not indicate much in day signaling, as practically all signals are position signals. This, however, makes the test for color vision none the less important.[4]

It is to be remembered that the function of all fixed signals, whether called block signals or by some other name, is to inform the engineman whether or not he may proceed beyond the signal, or on what conditions he may proceed, and to convey the information some seconds before it will have to be acted on. This last is a vital feature, for the essential difference between driving a horse in the street and driving a locomotive, the difference which makes costly signals necessary, is that the engine driver, controlling a heavy body moving at high speed, must have ample preliminary notice of any requirement to stop.

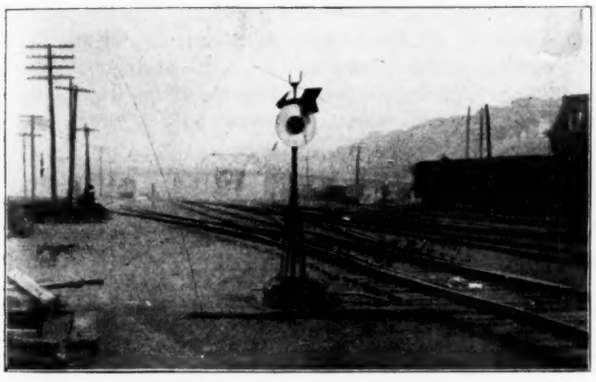

Fig. 2.—High switch target, Kansas City yards.

Day-fixed signals are whistling posts, road-crossing signs, flags, switch targets, train order signals, gates or bars, interlocking and block signals (Figs. 4 and 5).

If the speed of the trains is much increased, as the experiments in Germany with the electrical road indicate, and a maximum of 100 to 120 miles an hour maintained, the semaphores will have to be much larger, to enable them to be seen at a sufficient distance to control the train, or some automatic arrangement used which will cut off the current for an obstruction signal.

NIGHT SIGNALS.

As the trainmen are almost entirely dependent on signals at night for information as to track obstructions, location, warnings and means of communication, this is the most important part of railway signaling—it should be the simplest, the surest, and should have the contrasts most marked. The colors used are red, white, green, and on some roads yellow.

The fixed night signals are white, red, yellow and green lamps or lanterns, with purple or dark blue in use for back lights at interlocking plants. Red and green fuzees are used for emergency signals and to indicate track conditions.

In all night signaling, while the color is the main indication, the location of the lights has something to do with determining the meaning of signals, i. e., a red above a white or green will indicate one thing, and a white or green above a red another; hence the necessity for perfect color perception. Yellow is used as a caution signal on roads where green is used for clear. Its usefulness is in case a glass should break in any signal, a white light would show when it should be yellow, red or green, and indicates that something is wrong.

The arrangement of night signals, green and red on the home signal and green and yellow on the distant, has been the practice on the New York, New Haven & Hartford for about two years, and is being adopted by a few other roads. The use of green for "Proceed" relieves the enginemen of the risk of taking a street or house light for an all-right signal. Yellow lights, to be always quickly distinguished from common "white" lights, must be so dark as to look a little like red, but this likeness is not found to cause any difficulty in practice. Even if a distant signal were to be taken for a stop signal, no harm would ensue.[4]

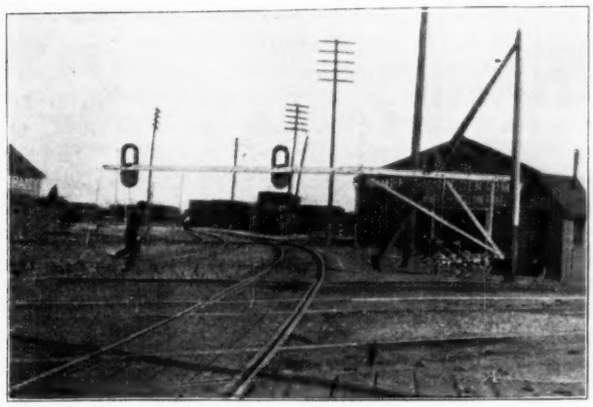

Fig. 3.—Crossing gate, C. & G. W. R. R.

Night-motion signals are made with white, red, yellow and green lanterns swung by hand.

There has been some effort made to get a position signal for night, but so far nothing satisfactory has been accomplished.

TRAIN ORDERS.

The fact that the time schedule of trains must be so closely followed and telegraphic permission must be obtained by enginemen and conductors to proceed if their train is late, also adds greatly to the safety of trains running under the block system.

Train orders written on different colored paper, which designates the class, is in use on some roads. For instance, the Baltimore & Ohio uses yellow for general, green for caution and white for clearance orders.

Some roads use signals which stand normally in the clear position, while others use those which are normally in the danger position. Both have their advantages and disadvantages; normally at danger position would seem the safest, however.

4. Adams, B. B.: The Block System, pp. 123, 139, 173.

THE ENGINEER.

"A few years ago the profession of engine driver was one which did not require such an amount of skill as is necessary to-day. Men who entered the ranks were brought up from the brakemen and firemen class and were rather men of superior intelligence. To-day, however, all is changed, for the reason that a higher grade of ability is demanded and high speed locomotives are infinitely intricate and demand a higher grade of scientific knowledge."

CONDITIONS ABOUT ENGINE AND RAILROAD YARDS.

Conditions existing about an engine, such as the escape of steam when an injector is used, when the whistle is blown, from leaking valves or connections, from the poorly packed piston rods of air pumps, cylinders and steam chests, will often completely envelope the engine and cab (Fig. 13). Steam and soot from the smokestack is often blown back against the cab windows, covering them with steam and dirt and making it next to impossible to see through them, to say nothing of obtaining a view of anything through the condensed steam and smoke. This is especially true in passing under the viaducts or bridges entering the railroad yards of large cities, where there are many moving engines and trains, and signals must be closely watched for (Fig. 14). In freezing weather the escaping steam is especially bad, as the windows are coated with ice, and vision through them is out of the question. The escape of steam inside the cab in cold weather often coats the side windows with frost and ice, but rarely the front ones, as the rush of cold air against them while in motion keeps them clear. Double glass is also used, with an air space between, which prevents their freezing. The dust raised by passing trains often coats the windows, especially if they are damp from escaping steam; the engineman's position, being on the right side, escapes most of this, however, on roads which run their trains right-handed on double tracks. The cloud raised from ploughing through snow drifts shuts off all vision for the time. Some considerable complaint is made of the drivers throwing mud and dirt on the front windows in moist weather.

THE FIREMAN.

The glare from the furnace door when the engine is stoked makes the reading of signals much more difficult. There is an iron shield above the furnace door on the engineman's side, which protects him somewhat. Many enginemen have their seat curtained off to relieve them of this glare. After looking into this glow from the position of a fireman during the time required to shovel in five or six shovels of coal, it is an utter impossibility for a novice to read a signal. There was a black scotoma before my eyes, the size of the furnace door, for fully ten minutes, and I could distinguish nothing except eccentrically. Firemen have told me they could not even see their steam gauge for several minutes after a stoking, and when one takes into consideration that from three to ten tons of coal are handled in a two to five hours' run, there is not much let up from looking into the fire-box, and when this is done daily for five or six years, or even longer, before a fireman can expect to become an engineman, it must be a good pair of eyes that can stand it and pass the required standard examination for promotion, without a rest or change.

Again quoting from Mr. Quayle's letter:

I think you are correct in this matter—that is, it is quite difficult for a new fireman to do this, and it would affect one's eyes who is not accustomed to it, but the firemen who are accustomed to this kind of work have a method of shielding their eyes by the manner in which they guard them with their eyelids, and closing the eyes. They can look into a fire and distinguish things you and I could not do. The same is true of a blacksmith. Take a blacksmith and let him have a piece of iron in the fire, and when it is pretty nearly up to the temperature of the fire, the blacksmith, with his trained eye, can see the difference there is between the color of the iron and the color of the surrounding body of fire, while the eyes of the novice would be so affected by the brightness of the light that he would not be able to see anything in the fire. This is true with a locomotive fireman. When he gets accustomed to it, he can use his eyes advantageously to the light conditions before him.

HEADLIGHTS.

The divergent rays from the headlight make it more difficult to read signals if there is fog, snow or mist in the air; with the electric headlights, while they are of the greatest advantage in all other ways, this is much more aggravated, an immense disc of reflecting and refracting particles is directly before one, and it is almost impossible to distinguish signals through it. If these headlights were built on the same principle as the searchlights of the Navy, so that they would throw parallel rays and could be deflected to strike the track at say 100 yards' distance in front of the engine, they would be greatly improved. This effect was obtained for Dr. Young and myself on the Burlington Road by Mr. J. A. Carney,[7] the master mechanic of the Burlington Division, by making an extension to cut off the divergent rays and stopping the light down with a diaphragm. An 18-inch extension with the light stopped down to a pencil about 9 inches in diameter made a perfect light.

Mr. Mark A. Ross,[8] general manager of the Pyle-National Electric Headlight Co., in discussing Mr. Carney's paper before the Western Railway Club, said:

I have a great many letters, too, from engineers who are running the electric headlights, who state that they strain their eyes more in running an engine with an oil headlight in one night than they do with the electric headlight, for the reason that they are always gazing fixedly ahead, trying to find or pick up something, and with the electric headlight they can sit back in the cab; they do not have to put their heads outside of the cab, and they can see anything just as they can in the daytime.

It is impossible to estimate distances accurately behind an electric headlight, or to tell how far off an oncoming train lighted with one is.

The effect on the eyes of looking into an approaching electric headlight on double tracks is very much the same as looking into a searchlight, but it is unnecessary for enginemen to look directly into the source of light.

MOTION OF THE ENGINE.

The constant jarring, swaying and rolling of an engine traveling at a high rate of speed, is another factor in making signal reading difficult.

The constant supervision of an engine takes no small part of an engineman's time and attention, and his duties are far more than sitting on the seat and watching for signals. This is especially true when there is any trouble with the various mechanisms under his care.

ATMOSPHERIC CONDITIONS.

Certain atmospheric conditions are not only a source of great annoyance in reading signals, but often com-

7. Carney, J. A.: The Electric Headlight, West. Railway Club, May 17, 1904.

8. Ross, Mark A.: The Electric Headlight, West. Railway Club, May 17, 1904.

pletely obscure them at a distance sufficient to control a train. Fog, snow, mist and rain take precedence in the order given, and when it is necessary for better vision to have the head out of the cab window, the impingement of the fine particles of snow, mist or rain against the eyes blinds one almost instantly. The force of the wind traveling at a high rate of speed causes the tears to flow and blurs the vision after a very short exposure.

Night signals are seen at a greater distance in these atmospheric conditions than day. The foreground and background of day signals make a great difference with their being easily seen. A sky background is the ideal (Fig. 15); the kind of day does not seem to make much difference. Signals displayed on roads running through mountainous country, and especially where there are many curves in valleys, are very hard to distinguish from the elevated positions on either side (Fig. 16). Woods stripped of their leaves or in full foliage, the proximity to buildings and bridges, all tend to make the position signals less distinct, while the cross-bars of telegraph poles are very confusing (Figs. 17, 18, 19, 20). Undoubtedly night signals are much easier read, as the contrast is so much greater, but as to their being seen any farther, or so far, atmospheric conditions being the same, is questionable.

The reflection from snow, from a body of water, from the solid green of foliage, running toward the sun when near the horizon, the shimmer in the atmosphere on hot summer days, all are features which add much to the difficulty of seeing signals.

Thus it will be seen from the factors enumerated above requiring good vision and those tending to interfere with it, the best known standard of binocular single vision and color perception is none too good, and not only must a man have this, but it must be "quick vision" (referred to by Dr. A. H. Andrews[9] and Dr. J. E. Minney[10]), for he may for an instant be able to see through some break in the interfering media, and must be able to read his signal in that instant.

There seems to be no means of overcoming the interference with vision by escaping steam. An engine may come from the roundhouse in perfect condition, but when partly through its run something occurs which allows a leak, and the enginemen have this to contend with.

EXPERIMENTS WITH LENSES.

Lenses of various colors were experimented with in looking into the fire-box from the fireman's position, and then trying to read day and night signals. The night signals were harder to see because of the glare being more intense in the surrounding darkness, the daylight relieving part of its intensity. Smoke lenses of the deeper shades allowed one to look into the fire-box without producing a scotoma before the eyes, but distinguishing signals with them and seeing the various mechanism about the cab distinctly, is out of the question; the color signals are made very indistinct. Green lenses are very good, but they blot out the red lights entirely, making one blind to red. Red lenses make the green appear dirty white, producing green blindness. Blue lenses do not cut out enough of the bright rays, and one is troubled with scotoma. A light amber lens, such as referred to in the German abstracts in the *Annals of Ophthalmology*[11] and by Dr. H. H. Seabrook,[12] as having been tried in the German army for target practice, gave a perfect result. I could look into the fire-box of the large type engines, see all parts distinctly, relieved of the blinding glare, see about the cab perfectly, climb on the seat with no spot before my eyes, and the signal lights maintain their clear definition of color, white being tinged a slight yellowish. The green light can not be seen at so great a distance as with the naked eye, but red and white can be seen an equal distance and with equal distinctness. The effect produced by watching the lights with green lenses before the eyes was rather weird, as red lights were practically blotted out, and on removing the lenses flash into view in a startling manner; the white and green lights were not affected. With red lenses the green lights were observed as white coming through dirty glass; the white lights were tinged with a faint red.

EFFECT OF THE FURNACE GLARE ON THE EYES.

As to the effect on the eyes of looking directly into the white heat of a furnace, various authorities disagree. Snell[13] says:

There is, I think, no definite evidence that men exposed to the heat and glare of the furnaces or from the molten metal suffer materially in their eyesight, though some assert that disease of the background of the eye is occasioned in some instances.

Fuchs mentions retinitis due to a dazzling produced by gazing at sun and electric arc lights.

The following questions were sent to a number of ophthalmic surgeons who come more or less in contact with men working under these conditions:

1. Have you found among furnacemen, glassblowers, railroad firemen or iron mill workers ocular conditions the result of looking into the glare of furnaces, which have caused any reduction in vision? 2. If so, was the injury permanent?

Many answers were negative. A few replies from conservative men are quoted:

Dr. Ledbetter, Birmingham, Ala., reports two or three cases of chorioidal irritation among brass furnace workers.

Dr. Edward Jackson says:

I have seen early opacity of the lens in a glassblower and several cases of inflammation and subsequent atrophy of the chorioid in blacksmiths and rolling mill workers which caused impairment of vision. In all cases the injury seemed to be permanent and directly connected with the exposure to heat.

Dr. de Schweinitz, after the examination of puddlers for incipient cataract, concluded that:

These puddlers are apt to show a good deal of low-grade disturbance of the chorioid, the condition which is sometimes vaguely called congestion of the chorioid, the "ripe peach chorioid" of Risley's phraseology, and it seems possible to tell by ophthalmoscopic examination whether a man was a right-handed or a left-handed puddler; in other words, that eye which was more directly exposed to the glare from the furnace was the one more apt to show the condition to which I have referred.

Dr. Posey, after examination of several hundred glassblowers and men working about the furnaces in glass establishments, says:

I am convinced that working over furnaces does produce cataracts, for I have found opacities of the lens at an age far earlier in men engaged in this work than could be accounted for by senility. In looking over my ophthalmoscopic findings

9. Andrews, Dr. A. H.: Discussion of Dr. Allport's paper, "Some Remarks Concerning the Requirements of R. R. Employes," The Railway Surgeon, January, 1904.

10. Minney, Dr. J. B.: Discussion of Dr. Allport's paper, "Some Remarks Concerning the Requirements of R. R. Employes," The Railway Surgeon, January, 1904.

11. Dolganow and Klimowitsch: On Yellow and Yellow-green Glasses, Annals Ophth., October, 1901, July, 1903.

12 Seabrook, Dr. H. H.: Amber Yellow Glasses in the Examination and Treatment of the Eye, Medical News, Aug. 22, 1903.

13. Snell, Simeon: Dangerous Trades.

of the cases, I noted that I thought the chorioids were congested and the optic nerves grayer than they should be in many instances. Whether the cataracts are due to the chorioidal changes or whether they are due to the heat or light emanating from the furnaces or from the action of some rays whose existence is unknown to us at present, I can not say.

Dr. Casey A. Wood reports a case from an electric welding furnace, and says:

In answer to your circular note, I know that I have had a number of cases of injury to the eye from looking into furnaces without the protection of glasses. In one case the injury lasted at least a year, and, so far as my information goes, was permanent.

Dr. Charles A. Oliver said:

I have had a number of cases; not only uveal tract and retinal disturbance, but with both associated and consequent lenticular swelling and opacification. The interesting point of my findings has been that the left eye was the one which was either primarily or alone affected in right-handed men, this eye, by reason of the right arm being the governing one, being that which was situated near the fire. The injury was permanent, but never absolute, as proved by studying the eyegrounds after extraction of cataract.

Dr. Minnehan, Topeka, reports many complaints from firemen, but no permanent trouble.

Dr. Chas. H. Williams has never seen a case, but remarks: "It is easy to believe such work would aggravate such existing conditions," and Dr. Burry's[14] recent paper, "Electrical Ophthalmias," mentions several from electric welding. The reports show no permanent injury resulting from electric flashing.

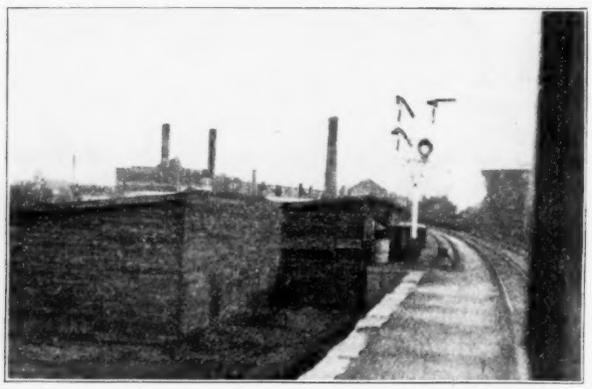

Fig. 4.—Combination disc and semaphore block, C. & N. W. R. R.

A number of firemen have volunteered the information that they had passed their entrance examination all right, but when they were re-examined after four or five years' service their left eye was not so good as the right, which is the one next to the fire-box in stoking.

MECHANICAL PROTECTION OF THE EYES.

Protection of some kind is the only method of overcoming the effect produced by the impact of snow, mist, rain and wind against the eye, and all sorts of devices are resorted to. Fully 90 per cent. of the men questioned admitted they carried some form of a protection glass for such an emergency. With lenses before my eyes I found no difficulty in facing the worst storms; the glasses did not become dimmed enough to prevent sufficient vision to read signals at any distance they could be made out with prevailing weather conditions, and the condition of the eyes was infinitely better. The larger the lenses the more perfect the protection. The question of fogging, as Dr. Young[3] says, "may be dismissed if we only stop to consider that fogging only occurs when going from a cold air into a warm one," and within five seconds after contact with cold air the lenses are clear again. This point, however, is one small factor against the use of glasses by trainmen, as the engineer is unable to see distinctly about his cab for the few moments his glasses are fogged, after contact with cold, but he is equally unable to see for the same length of time as a result of coming in contact with snow, rain and wind with the naked eye. The lenses also protect the eyes from the flying coal dust in the cab.

The reflection from snow, from a body of water, the sun near the horizon and the shimmer on hot days was best overcome with the amber lenses.

CARE OF THE LAMPS IN NIGHT SIGNALING.

A very great deal depends, in night signaling, on the care taken of the lamps used, and the lenses in the spectacle frame of the semaphore arm must be kept clean. A lamp not properly trimmed or turned too high will smoke its lenses, and as a consequence the signal is dim or almost invisible. Under such conditions enginemen with defective color perception or a tendency toward color confusion can not distinguish between red, green or white; even with normal color perception the signal can not be seen at sufficient distance to control a train. The difference in the care taken of the lamps is very marked in going over 40 or 50 miles of road.

Fig. 5.—Disc block signal, C. & N. W. R. R.

With 20/20 (6/VI) V., under good atmospheric conditions, with good backgrounds (Fig. 14), semaphores could be distinguished at 2 to 3 miles. With night signals, under the same conditions, the white could be seen at 1 to 2 miles, the red at 1 to 1½ miles, and the green and yellow at ½ to 1 mile. When I became familiar with the location, position, and background of a signal, I could distinguish it at a greater distance, showing that the enginemen, knowing just where to look for the signals, can distinguish them much more quickly and at a greater distance than a novice with equally good vision.

14. Burry, Dr. James: Electrical Ophthalmia, Chicago Medical Recorder, March, 1904.

With +1.00 D. before each eye, my vision was reduced to 20/40 (6/XII) with the Snellen test type with which I could make out day-position signals at about 2,800 feet, night signals at about 3,000 feet. Plus 1.50 gave me 20/80 (6/XXIV) vision. With these I could not make out a signal until within 200 to 500 feet.

Dr. Young[3] states:

> The lamp signals stand out better with 20/40 than with 20/20. This is explained when one considers that with 20/20 the effulgent rays can be made out. These effulgent rays give a twinkling unsteady effect, which is still farther accentuated by the jolting of the engine. With 20/40 these effulgent rays are blotted out and the lamps stand out as illuminated discs.

This was also my experience. At the much-lessened distance I could make out the lights with 20/40 (6/XII) V.; but I could make them out much more clearly and at a much greater distance with 20/20 (6/VI) V., as cited above, and again, if there were a number of lights displayed, as are usually seen in railroad yards, the proximity of these illuminated discs were very confusing.

MEDICAL REPORTS REGARDING THE STANDARD OF VISION.

There are at present four reports as to the standard of vision and hearing required by trainmen, which have been adopted by four representative medical societies of the United States, i. e., Section on Ophthalmology of the American Medical Association, the House of Dele-

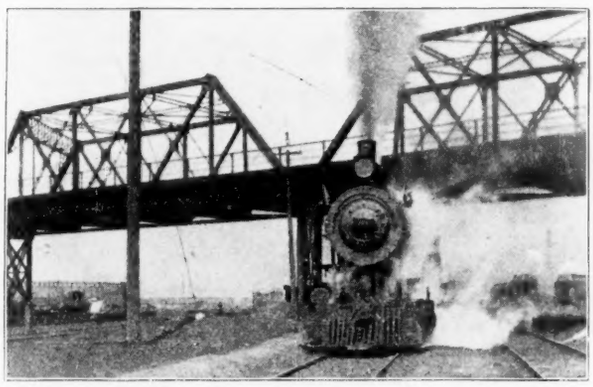

Fig. 13.—Conditions about engine interfering with vision of signals.

gates of the American Medical Association, the American Ophthalmological Society, and the American Academy of Railway Surgeons. There is a fifth report, which I have been unable to obtain so far, adopted by the American Railway Association; the work of the committee has not been completed.

These reports are all the result of careful and painstaking work, by men who have devoted a great deal of time to the subject. Dr. William Thomson[15] was the first in the United States to inaugurate a system of practical examination of railway employes, and in 1881 this was adopted by the Pennsylvania Railroad Company. All here are familiar with the good work done by Dr. Frank Allport[16] and Dr. Chas. H. Williams.[17]

In 1901 the committee appointed three years previously by the Section on Ophthalmology[18] of the American Medical Association made their report, which was adopted by that Section. The following year the House of Delegates[19] adopted a somewhat modified report. The American Ophthalmological Society[20] report was adopted in 1901. The report of the American Academy of Railway Surgeons[21] was adopted in 1903.

EXAMINATION OF EMPLOYES.

Many roads are using a set of rules for the examination of their employes, modeled after some one of these reports, and it is my opinion that if what we wish to arrive at is uniformity in examinations among the various railroads, the medical organizations must have a uniform report. These reports vary but little in the essential features, and any one could well be adopted by all.

There is no reason why they can not be merged (as some railroads are trying to do at the present time) into one, and we could then have a uniform standard in practice as well as name; and it seems feasible that if four representative societies combine on one report the railroad officials will be much more willing to adopt

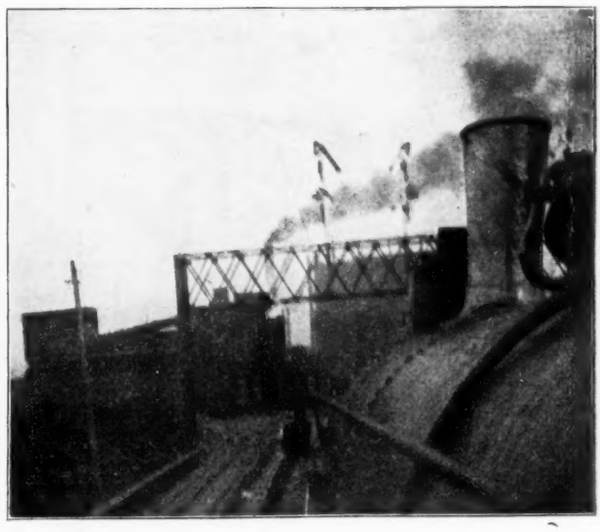

Fig. 14.—Block signal with smoke background, C. & N. W. R. R.

the same. Then, as Dr. Chamberlain remarks: "We shall be working in harmony with others, and when a man comes off the C., B. & Q. to the Northern Pacific, he can not be employed if he has been discharged from the Q. road."

Regarding the sections of the four reports, all agree as to the necessity of examination for vision and hearing.

In Section 2 there is a slight bone of contention, and while it must be admitted that examinations by ophthalmic surgeons would be more scientific and more nearly correct, it has been conclusively shown that examinations carried out under the instruction of an ophthalmic surgeon, by men selected by the company, who

15. Thomson, Dr. Wm.: The Practical Examination of Railway Employes as to Color Blindness, Acuteness of Vision and Hearing, "Nettleship, Diseases of the Eye."

16. Allport, Dr. Frank: The Eyes and Ears of Employes of Transportation Companies, THE JOURNAL A. M. A., Dec. 16, 1899; What Amount of Visual Defect Should Disqualify in Railroad Service, THE JOURNAL A. M. A., Oct. 13, 1900; Some Remarks Concerning the Ocular and Aural Requirements of Railroad Employes, THE JOURNAL A. M. A., Feb. 27, 1904.

17. Williams, Dr. Chas. H.: Vision, Color-Sense and Hearing, Western Railway Club, Feb. 8, 1902; The Need of a Supplementary Lantern Test for the Proper Examination of Color Perception, Boston Med. and Surg. Jour., July 30, 1903.

18. Report of Section of Ophthalmology of the American Medical Association, Vision and Color-Sense of Railway Employes, Transactions Section on Ophthalmology, A. M. A., 1901.

19. Report Adopted by House of Delegates Amer. Med. Assn. Regarding Tests of Sight and Hearing for Railway Employes, Transactions House of Delegates Amer. Med. Assn., 1902.

20. Report of the Committee of the American Ophthalmological Society on Standards and Methods of Examining the Acuteness of Vision, Color-Sense and Hearing for Railway and Marine Service, Transactions Amer. Ophth. Soc., 1902.

21. Report adopted by American Academy of Railway Surgeons, Uniform Standard for the Examination of Railway Employes, Transactions Amer. Acad. Railway Surgeons, 1903.

refer doubtful cases to such surgeon, have resulted in perfect satisfaction to all concerned.

The reports all agree as to the standard of test types used. A word may be said here regarding uniformity of illumination of test type, inasmuch as uniformity is the watchword. We all know what a variation there is in the intensity of illumination of test charts, and this results in a very great difference in the grade of visual acuity obtained by different examiners. A transillumined or self-luminous test cabinet is the only means of overcoming this difficulty. Such a one is described in the *Ophthalmic Record*.[22]

The section referring to the minimum requirements for acuteness of vision is the most important clause, and all the reports agree that 20/20 (6/VI) vision in each eye without glasses shall be required for entrance into service or promotion.

STANDARD OF REQUIREMENTS.

The standard of 20/20 (6/VI) V. for entrance into service for Class "A" is the least that should be required; but when it comes to promotion in service, there should be some concession made, for firemen who have stoked from five to eight years show, as a rule, some loss of vision, especially in the left eye, which improves, according to the records, after the change in environment. Dr. Williams[17] says:

Fig. 15.—Bracket pole semaphore block, C., M. & St. P. R. R. Ideal background.

A fireman who has worked for some six years satisfactorily as fireman comes up for promotion to engineer. He has only 20/30 vision; the rule requires 20/20, the object being that when a man first began his work as engineman or fireman you wanted to begin with a man who had normal vision. It seems to me that it is hardly fair as it works out. If he has 20/30 on re-examination you will allow him to continue to run as fireman, and if he has 20/30 on re-examination you will allow him to continue to work as engineman; then, why not allow him to be transferred from one side of the cab to the other with the same amount of vision, 20/30?

The House of Delegates' report and that of the American Ophthalmological Society require for re-examination of those in the service, "20/30 with both eyes open, without glasses," with the additional requirement that "each eye should be tested separately and the vision of each noted." Under this ruling a man with one blind eye could be retained in service, and Dr. Williams[17] brings the following argument forward in support of what he acknowledges to be a fact:

This rule allows a man to continue running who has 20/30 of normal vision in one eye and little or none in the other. The fact of such defect is brought to the notice of the operating officer in the report of the examination, and a man with this defect would naturally be assigned to less trying runs than would be given to those with perfect sight. A standard has sometimes been recommended which provides that in this class a man must have vision of 20/30, or better, in one eye, and 20/40, or better, in the other in order to be passed as satisfactory. Suppose a man had 20/20, or normal vision, in one eye, and 20/50 in the other. This rule would reject him, which seems unfair. In such a case the man, for all practical purposes, uses only the visual impressions which he gets from his good eye, and it makes little difference to him in his work whether the poor eye has a vision of 20/50, or 20/70, or 20/40. The work he is able to do is measured by the capacity of the better eye, and he becomes so accustomed to the monocular vision that it gives him little inconvenience. It has been urged that if an engineman with only one good eye got a hot cinder in it he would be of little use. That is true; but it must be remembered that in the cab there is always a fireman with a second pair of good eyes, ready to take up the work in any such emergency until assistance can be obtained, and also, even if the engineman had two good eyes, the pain and flow of tears which would be caused by the hot cinder in one eye, would prevent a satisfactory use of the other.

In reply to this, in the first place, Dr. Williams admits that the man is not so safe a man and should be

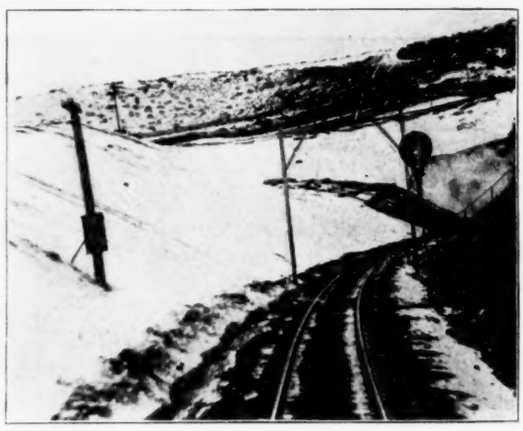

Fig. 16.—Disc home signal for tunnel with bad background, U. P. R. R.

"assigned a less trying run." Further, I contend that with 20/30 in one eye, 20/40, 20/50 or even 20/70 in the other, helps the vision of the better eye. With my vision reduced to 20/40 I could read day signals perfectly at ½ mile, night signals at 4,000 feet, and with 20/80 at 500 feet and 800 feet, respectively. The fireman has about all he can attend to on a limited train without assuming an engineman's responsibility; further, there should be no excuse for using him in such an emergency, by simply changing the clause to read as it does in the other reports, or as it does in the reports from which it was evidently adopted, i. e., that of the Dutch State Railway.[23]

For the post of engine driver or stoker, . . . on looking with both eyes open, visual acuteness of at least 3/4 (without glasses) . . . with each eye separately, the other eye being covered, visual acuteness of at least 1/3 (without glasses). . . .

This would fully cover the entire field of contention. Dr. Allport's[24] stand against this clause is well taken:

22. Black, Dr. Nelson M.: Luminous Test Cabinet. Ophth. Record, April, 1904.

23. Transactions Amer. Ophth. Soc., 1902.

24. Allport, Dr. Frank: Some Remarks Concerning the Ocular and Aural Requirements of Railway Employes, Railway Surgeon, December, 1903.

Under Section 5, House of Delegates' report, under the requirements for re-examinations of those in the service "belonging to Class A," it says: "The employe shall possess a vision of 20/30 with both eyes open, without glasses. Each eye should also be tested separately and the vision of each noted." This opens a wide avenue of discussion. The report of the Section on Ophthalmology concerning this same point says that "Employes enumerated in Class A shall not be retained in such positions if vision sinks below 20/30 in one eye and 20/40 in the other." In other words, a reasonable standard is required of each eye, and it seems as if this must appeal to the judgment of anyone at all familiar with such work. Would anyone in this society care to travel on a train at the rate of 50 or 60 miles an hour with an engineer wearing a glass eye? I think not; the idea is untenable, and yet this is exactly what the House of Delegates' report permits, for it says that vision must be 20/30 with both eyes open. To be sure, it also says: "Each eye should be tested separately, and the vision of each noted," but it goes no further. It does not inflict any penalty in case an engineer has one blind eye. While disposed to be most liberal with the old employes of a road, and while recognizing its advisability and almost necessity if good service and freedom from labor union complications are to be encouraged, I still can not indorse the idea of testing with both eyes open, and of ignoring the condition of a man's worst eye. The idea is evidently conceived from the action of the International Congress, which met in Amsterdam in 1879, and which in formulating rules for the ocular condition of transportation employes, under the guidance of Professor Donders, repeatedly

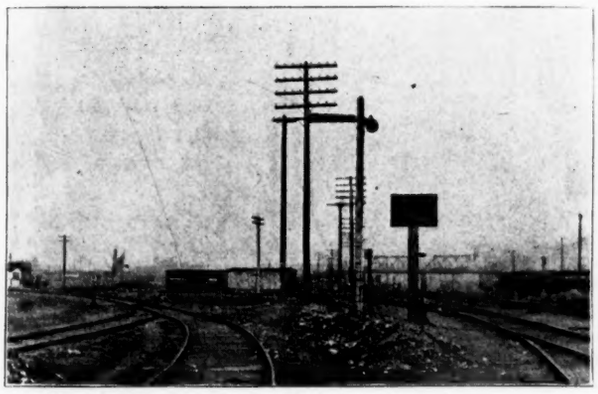

Fig. 17.—Semaphores with bars of telegraph poles interfering, Kansas City yards.

speaks of testing with "both eyes open." This was evidently recommended, because it is well known that one eye assists the other to see, and the committee desired to treat all employes with all possible clemency, but they did not in their recommendations ignore the condition of either eye.

Magnus and Würdemann[25] give as the minimum amount of vision for enginemen 75 per cent. of the scientific standard (6/VI), which is equal to 6/VIII, or approximately 20/XXX, "which is practically a perfect working or economic standard of vision."

Applicants for entrance into service possessing 1½ D. of hyperopia or over, should not be accepted, for the reason that they will need glasses to bring their vision up to the required standard at the age of 35 or 40.

At this point the subject of glasses must be considered, and from my experience I would heartily indorse a clause to the effect that if the vision of those examined for promotion after five years' service and those re-examined in service fell below the standard required, and such vision could be brought up to the required standard by glasses, they be promoted or retained in service. "Glasses must be worn if they are necessary to secure adequate vision." It is my unbiased opinion that protection to the eyes by lenses, more especially if needed to correct any refractive error, are of great benefit, and such opinion has been arrived at with a great deal of thought and careful study of the few objections to glasses for trainmen. The reports of Dr. J. de Lantshure[26] and Dr. J. A. Denney[27] as to the diminution of vision after long runs, I think can be easily explained. The men undoubtedly had more or less latent hyperopia, and the constant accommodative effort so tired the ciliary muscle that vision was somewhat reduced after a long run.

The color tests are of equal importance with visual acuity, and all reports agree in the use of the Holmgren wools.

The use of a lantern for a control test is a good idea, but why in the examination with the Holmgren wools is the following rule given: "No names should be mentioned in connection with any color in the above worsted tests; the tests should be based only on a comparison of colors," and with the lantern test, "have the person being examined call the names of the colors shown."

The value of the color test is to determine whether the person examined can distinguish between various

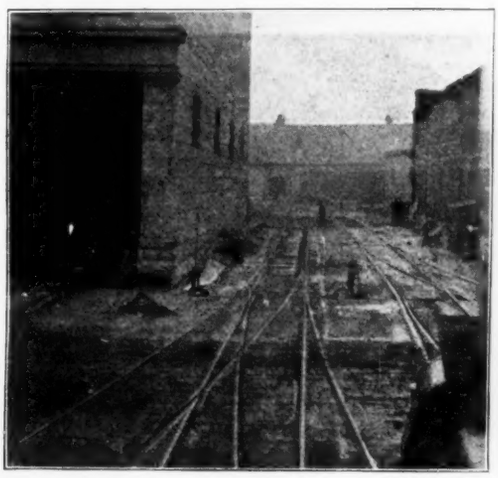

Fig. 18 —Block signal with bad background, C., M. & St. P. R. R.

shades and degrees of intensity of color, so they can be sure of a signal if its intensity is reduced by atmospheric conditions, smoky or dirty lenses, or improperly regulated illumination. It has been stated many times that men can distinguish without any hesitation between danger, caution or clear colors, displayed of varying degrees of intensity, but fall down at once if required to name the colors:

Again quoting Dr. Williams:[17]

I have found personally in the last few years four cases of men who passed the worsted test without any difficulty, who picked out these colors quickly and accurately, but when they looked at a distant signal, or when they looked at the testing lantern, especially with small openings, they would often call a red light green, or a green light red; they were just as likely to mix up red and green as they were to get them right. This is due to a defect in the central portion of the retina. In such cases, when the colored object is large enough, or when it is placed near enough to the eyes, its image will extend beyond the affected parts of the retina, and its color can be at once recognized; but when the retinal image is small, as is the case with the light from a distant signal, which falls wholly within the affected area, it is easily mistaken. In order to get at the

25. Magnus and Würdemann: Visual Economics.

26. de Lantshure, J.: Trans. Amer. Ophth. Soc., 1902.
27. Denney, J. A.: Trans. Amer. Ophth. Soc., 1902.

fact as to whether a man is thoroughly able to recognize his signals you need both a worsted test and a lantern test, the lantern coming nearer to the actual condition of night signals, where the man has nothing except the color to guide him.

Replying to this, I do not think a person with scotoma of sufficient magnitude to pass the worsted test and fail on the lantern test would have sufficient vision to pass the required visual standard. There is no doubt the lantern test is more nearly a road test and will seem more fair to railroad men, but it should be used only as a control test, not as a substitute for the worsted test.

The sections relating to the time of re-examination are unanimous, as also are those regarding the use of liquor.

The report should be accompanied with instructions for making the various tests and the use of the apparatus required.

CONCLUSIONS.

The result of my observations has been, in brief:

1. The best known standard of visual acuity and color perception should be required of men concerned in the active operation of trains.

2. The signal systems now in vogue, while they are not perfect, are sufficiently adequate for the standard of vision required and the present speed of trains.

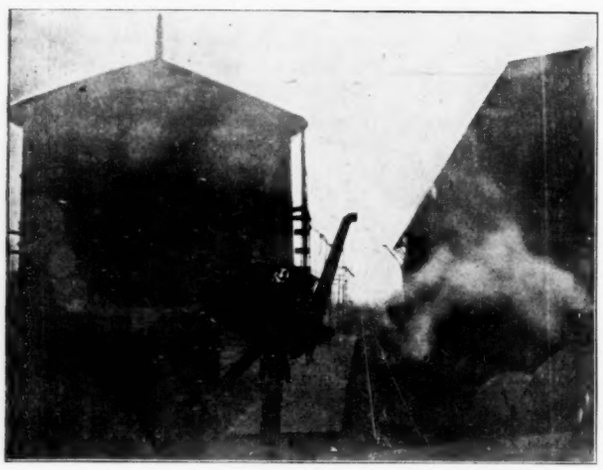

Fig. 19.—Block signal with bad foreground, C., M. & St. P. R. R.

3. Certain physical and accidental conditions about engines interfering with vision can not be overcome unless the position of the enginemen can be changed.

4. Certain atmospheric conditions interfering with vision can not be overcome; others can be mitigated or entirely relieved by the use of some form of protection to the eyes.

5. Glasses are not a hindrance to enginemen, and their use should be allowed when required to protect the eyes or to bring the vision up to required standard, but no person should be accepted into service requiring them or who will accept a plus lens of 1½ or 2 D.

6. With four reports emanating from four different sources of equal merit and standing, and all different in small details, the obtaining of perfect uniformity in examination of railway employes is out of the question, as it can not be expected that the officials of different roads will all decide on the same report.

7. Furthermore, state legislation on the subject of vision and color perception of railway employes is being seriously considered, two states, Massachusetts and Ohio, having statutes regulating this. As nearly all railroads pass through a number of states, it would be well for the societies from which these reports emanate to agree in all details, as the state laws will necessarily be based on them, and if different states have different standards, an engineman qualifying in one and not in another, with his run extending in both, would be in serious difficulty.

9,816. Sec. 1. Be it enacted by the general assent of the state of Ohio that no railroad company shall hereafter contract to employ any person in a position which requires him to distinguish form or color signals, unless such person within two years next preceding has been examined for color blindness in the distinct colors in actual use by such railroad company by some competent person employed and paid by the railroad company, and has received a certificate that he is not disqualified for such position by color blindness in the colors used by a railroad company. Every railroad company shall require such employe to be re-examined at least once within every two years at the expense of the railroad company, provided that nothing in this section shall prevent any railroad company from continuing in its employment any employe having defective sight in all cases where such defective sight can be fully remedied by the use of glasses or by other means satisfactory to the person making such examinations. (As amended March 3, 1888.)

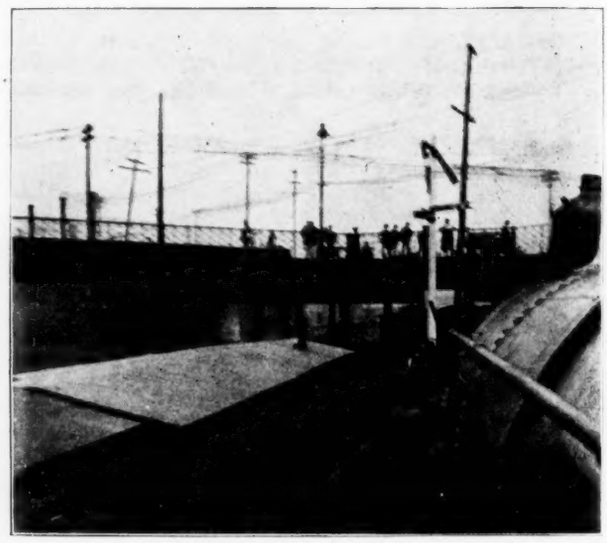

Fig. 20.—Block signal with bad background, C. & N. W. R. R.

The law in Massachusetts is practically the same as the above.

I am greatly obliged to Dr. H. B. Young for a great many suggestions and for engine permit on a portion of the Chicago, Burlington & Quincy Railway; to Dr. J. W. Chamberlain for engine permits on the Great Northern and Northern Pacific Railways; to Dr. Haldor Sneve for engine permit on the Chicago & Great Western; to Mr. A. J. Earling, president, Mr. J. N. Barr, assistant to president, Mr. A. E. Manchester, superintendent motive power, and Mr. L. R. Clausen, signal engineer, of the Chicago, Milwaukee & St. Paul Railway, for engine permits and much information relating to engines and railway signaling; to Mr. W. A. Gardner, general manager, Mr. R. Quayle, superintendent motive power, Mr. H. T. Bentley, assistant superintendent motive power, and Mr. W. E. Dunham, Chicago & Northwestern Railway, for engine permit and information; to Mr. T. Lowry, president, and Mr. E. Pennington, general manager, the Soo Railway, for engine permit; and to Mr. A. J. Carney, master mechanic of the Chicago, Burlington & Quincy Railway, for suggestions; Mr. H. L. Hollister, engineer Hall Signal Company, for pictures of signals and general information; Mr. Chas. Dunham, signal engineer Illinois Central Railway, for engine permit and suggestions; Mr. Mark A. Ross, general manager Pyle National Electric Headlight Company, for pictures and suggestions; Mr. Jos. W. Taylor, secretary Western Railway Club; Mr. F. P. Patenall, signal engineer, Mr. D. D. Carothers, chief engineer, and Mr. E. J. Schwellenbach, trainmaster Baltimore & Ohio Railway, for suggestions and engine permit.

DISCUSSION.

DR. C. H. WILLIAMS, Boston—Dr. Black comes to very much the same conclusions as have been arrived at before. In some of the smaller points he differs a little. As to the last thing

he mentioned, in regard to legislation, it seems to me there is little use in trying to do anything in that way. The next legislature can repeal the laws made by the former one. That was done in Connecticut, and that is likely to be the fate of any legislation on the subject. In Massachusetts and Ohio the law practically amounts to nothing. In Alabama there is a little better law, but even that does not specify how the examination shall be made. In regard to the question of the lantern as a substitute for the worsted test, I have never advised it as a substitute, but simply as a supplementary test. I had a man who picked out the worsteds in the Thompson and Holmgren sets, but who in the lantern test called red green oftener than he called it red. He used tobacco to excess and had a small central scotoma for red and green, which was not large enough to cover all the retinal image of the worsteds, but the light from a distant signal came entirely within the scotoma. Men entering the service should come up to a high standard. If you have a lot of men coming into the service without any examination, and later require examinations, some of the men fail to pass, and there is trouble; but if a proper examination had been made of those men when they applied for work most of them would not have been accepted. For the post of engine driver or stoker, on looking with both eyes open, visual acuteness of at least three-fourths, without glasses; with each eye separately, the other being covered, visual acuteness of at least one-third, without glasses. This is the requirement of the Dutch railways for re-examination. The requirement for candidates entering the service is much more severe.

DR. J. H. CLAIBORNE, New York City—I have never done any work particularly along the line Dr. Black has outlined, but many years ago there was a commission which met in Washington to determine means for preventing disasters at sea, and on that occasion I suggested the idea of eliminating red and green entirely from the lighting of ships. I endeavored to find out when the system of red and green lights had been instituted. I suggested that on the starboard side a parallelogram of the shape of a star or diamond be placed, and on the other side a different figure, in white lights. That commission went out of session after having done nothing except to change the depth of the water line. My paper was read and commented on and then laid aside. I have never suggested its use for railways. The difficulty lies in seeing the red and green colors under certain conditions. If we could use white light with geometrical figures, or blue, which is a rare color, it would simplify matters to some extent. There should be three men on a cab—one to drive, one to stoke, and a third to be on watch all the time.

DR. W. E. LAMBERT, New York City—There is one point not particularly emphasized, and that is the importance of having all the employes examined by competent ophthalmologists. The method in use by most of the roads of having the man passed on by one of their own employes is not sufficient. There is no system perhaps more particular than the Pennsylvania, and yet there came under my observation within the last year two men who had been employed by that road who had been passed by their examiners, and who had left to go to another road, in both of whom there was distinct color blindness. These men should be examined by ophthalmologists. It is very difficult to lay down a standard. The intelligent ophthalmologist should be able to decide that point. There are many cases where men with 20/30 or even 20/40 vision, when due to a slight astigmatism, might be accepted. It is the cause of the poor vision which is of importance. As to the lantern, I have only found one case which showed any color blindness with it that had not been discovered by the wool tests, and that was where it was due to a central color scotoma, and in that respect the lantern test is of value.

DR. JOHN S. KIRKENDALL, Ithaca, N. Y.—There is one thing which has been omitted in this most interesting paper of Dr. Black—lack of education on the part of railroad employes as to colors. I have tried men with the wool test, and they could select the colors, but with the lantern test they failed. Failure to pass is a serious thing for these workingmen; very often a little instruction in the names of colors means a great deal. Recently I had three faithful employes fail with the lantern test. I sent them home to return in four weeks, and in the meantime told them to take some lessons. They all returned and passed a perfect examination.

DR. H. V. WÜRDEMANN, Milwaukee—As to the points of difference between the committees, I am glad that Dr. Black and Dr. Williams have reconciled the differences that existed as to the examination of color vision. I defy any one to find a person defective so far as central scotomata and visual acuity are concerned where examination with both the woolens and Snellen tests will not reveal the defect. As Dr. Williams has allowed, I think the lantern should be a supplementary test. There are a few cases where I am convinced that the final test should be the use to which they are to put their eyes, i. e., as our final test in refraction is the experience of the patient with the glasses; so in some of our doubtful railroad cases it is necessary to examine the man on the train. Either the superintendent or one of the employes can perform that duty. If he can pass that test he is a safe man. As to legislation, I think we should have the same standard for all the states of the Union.

DR. F. C. TODD, Minneapolis—There is one point which has not been mentioned, i. e., the possible presence of diplopia. I was consulted several years ago by an engineer who had been examined by one of the regular lay railway examiners, stating that he had discovered that at times he saw double, and that it was confusing, as he could not tell whether a signal was meant for his track or not, and could not tell on which track another train might be running. He had no fear of passing the examination, because he had perfect color vision and visual acuity of 20/20. Such cases, I presume, are rare, but it would seem that they would not be discovered by the ordinary tests made by the railway employes, and these men should certainly be retired or suspended until the diplopia is corrected.

DR. C. F. CLARK, Columbus, Ohio—These cases come to the oculist finally for examination. We have found it valuable on the Pennsylvania system to make a comparative light sense test. Dr. Rogers, I think, first instituted the plan. It is found that, irrespective of scotoma, some men have defective light sense, although with good visual acuity. Put them in a dark room at long distance, have an observer at the side of the patient to check the test, and allow them to count fingers. This method is of great value as bringing out a defective light sense that is often surprising. Such a defect is sometimes due to tobacco poisoning or to some nerve lesion.

DR. NELSON M. BLACK—The question of legislation as to amount of vision and color perception required of trainmen was brought to my notice by railroad men and is something that is worrying them considerably. Regarding the lantern test for color perception, the men being examined should be required to tell whether the color shown indicates caution, danger or safety. This would be far better than naming the colors, as so many men are ignorant of the names of colors, especially the shades, and make all sorts of mistakes in attempting to name them. In examining men for the Army at the beginning of the Spanish-American War, all I had to use for color testing was paint samples, and pointing to well-defined shades, requested them to name the colors; many could not do so. When asked if there was anything a certain color resembled, as, for instance, green, they would answer readily that it was the color of grass, etc. Several superintendents have informed me that they have taken men over the roads who have failed to pass the color tests, particularly on re-examination, and found in every instance that, while the men could not pass the lantern color tests in the office, they made no mistake on the road as to what the color indicated. A high standard of vision for entrance must be required. The lessened standard for re-examination is made more for the old men, enginemen and trainmen, who came into the service without passing any examination or before examinations were required, and so the requirements must be made less than otherwise. The idea is to get men as nearly perfect as possible into service now, and later on the standard for re-examination may be raised.

Dr. Claiborne referred to the use of white lights; the majority of roads object to the use of white light in signaling entirely, as it is so easily mistaken for the lights illuminating the cities and towns the roads run through. They are now using yellow to some extent as a caution color, with green as clear. The use of blue lenses is out of the question with the kerosene lamps used to illuminate them, as they can not be distinguished at sufficient distance to be of use as a signal. With my vision reduced to one-half of normal, I could make out signals at one-half mile, and so I think enginemen with 20/40 vision should be retained in service, even if with but 20/40 in both eyes, and especially if a clause be inserted to take them from the more trying runs and give them service about the yards, where such a high standard of vision is not necessary.

THE SANATORIUM FOR INCIPIENT PULMONARY TUBERCULOSIS.

ITS AIMS, METHODS AND RESULTS.

FREDERICK L. HILLS, M.D.
First Assistant Physician New Hampshire State Hospital.
CONCORD, N. H.

HOME AND SANATORIUM TREATMENT.

The open-air treatment of tuberculosis is to-day an established fact. Its curative value is proven beyond cavil. It is not an experiment. It does not mean, however, that the patient is to be restored simply by a few weeks' or months' sojourn in a "lodge in some vast wilderness" or out-of-door life at a fashionable mountain resort or a tent life in his own back yard under the simple guidance of his own sweet will. It means rather a systematic regulated life under rigid discipline and routine. It means the constant watchfulness of every symptom, not by the patient himself, for this leads to introspection and consequent defeat, but by a well-trained nurse and a physician of experience. It means expense to the individual in time, in patience and in money. To the rich or the well-to-do this may be possible in his own house. For even the most favorably circumstanced, however, the proper régime at home is difficult if not well-nigh impossible. The family or friends of the patient can not give intelligent co-operation, and in laudable attempts to help will hinder advance by over-indulgence. Well-nourished, incipient cases with fair bodily strength do not impress their friends or themselves as invalids and are easily tempted to over-exercise, injurious amusements or other undue expenditure of energy, seriously handicapping the best efforts of even a thoroughly trained medical attendant.

Even when private grounds and houses can be adapted to the requirements of an out-of-door life the patient will often find himself unable to make full use of them because of the exaggerated impression such living makes on his neighbors and friends, much to his embarrassment, and it may be to the serious detriment to his present or future business interests. We live too close to the radiator in our northern homes to give intelligent appreciation to the man sitting on his veranda wrapped in rugs and reading his morning paper with the mercury at zero, even though later in the day we meet that man in office or store. Such things can not fail to provoke unwarranted remarks until we have been more liberally educated as to the value of oxygen and good red blood.

In such sanatoria as exist to-day the patient can find most congenial surroundings and agreeable companionship among persons of his own social class. He readily enters into the routine to the observation of which he is helped by the example of his fellows. He is stimulated by the spirit of hope which is everywhere manifest, and by the sight of others as ill or worse than himself steadily improving and returning to their work restored.

To be sure, all do not get well; some he sees slowly decline, occasionally some one dies, but these are exceptional cases and in spite of them the spirit of hopefulness is dominant and an inspiration to each to put forth his best efforts toward recovery. The medical supervision is here such as it is not possible to provide in the patient's home. A hospital with properly trained physicians and nurses, with the appliances and equipment for all details of treatment and all possible contingencies, is to-day recognized as the only rational method of treating the vast majority of diseases. Similarly equipped sanatoria are to-day recognized as indispensable to the curative treatment of tuberculosis.

STATE SANATORIA FOR CONSUMPTIVE POOR.

It is now everywhere conceded that it is the duty of the state to take a hand in this crusade against man's most insidious enemy by the education of the masses in hygiene, the enforcement of judicious sanitary laws and the provision of sanatoria for the treatment of the poorer people who form so large a percentage of her citizens, and for the protection and fostering care of whom she is responsible. Many countries abroad and several states in the United States and Canada have opened such sanatoria. That established at Rutland, Mass., has been in successful operation since 1898 and was the first institution of the kind supported by the state in America. New York has erected a state sanatorium at Raybrook in the Adirondacks and other states, among them Maine, Vermont, Rhode Island, Connecticut, New Jersey, Pennsylvania, Maryland, Louisiana, Minnesota and Ohio, have taken active measures for the erection and opening of similar institutions. The establishment of a state sanatorium for the treatment of tuberculosis in the state of New Hampshire, so ably discussed and warmly advocated by the commission of 1901, and subsequently endorsed by legislative action, let us hope, is soon to be accomplished.

The functions of such a sanatorium should be not only curative, but educational. It should aim to so instruct its patients that they may go from it as missionaries of hygiene, that they may instruct their families in the sanitary conduct of home life, and by their personal example help in bringing about much needed reform in the hygiene of the home. It should afford opportunity for health officers and physicians to study the sanitation of tuberculosis and should be equipped for the scientific study of the tuberculosis question in all its phases.

REQUIREMENTS FOR A STATE SANATORIUM.

Location.—The site selected for a sanatorium should be at an elevation of from 1,000 feet to 1,500 feet above sea level, and should contain from 200 to 500 acres, according to the number of patients it may be planned to accommodate, and should be on dry, porous soil. That part on which the buildings are to be located should be protected on the north from the prevailing winds, and should be open and gradually sloping toward the south, permitting exposure to the largest possible amount of sunshine. There should be sufficient tillable land to provide for the needs of the institution, and ample pasturage for cattle. The location should be near enough to a railroad to be readily reached by patients and to facilitate the handling of supplies. The building site

should be sufficiently remote from a public highway as to avoid contamination of the air by dust. Proper attention must be given to the presence of an abundant water supply from a source above suspicion and to efficient drainage.

Buildings.—These should consist of a central block, containing administrative building, store-house, kitchen, laundry and power-house. Grouped about this administrative block should be pavilions for the patients, including an infirmary for each sex, congregate dining-room and wards, accommodating from twelve to twenty patients each. The buildings should be connected by covered corridors, should be heated from a central plant, and lighted by electricity. The bathing and sanitary accommodations should be of the most approved pattern. The wards should be so built as to receive the greatest possible amount of direct sunlight, and there should be an allowance of 2,000 cubic feet of air space for each patient. Such ventilation should be provided as will change this air several times an hour. There should be ample accommodation of wide verandas with a southern exposure. The sexes should be separated by the administrative block. Inexpensive shacks opened on three sides, of sufficient size to hold ten beds, and furnished with a dressing-room containing lockers and bathing facilities should be provided for sleeping in the open air. There should be a nurses' home at a distance of several hundred feet from the other buildings. A disinfecting plant and crematory for sputum, etc., should be provided. Laboratories for chemical and research work should be provided in connection with the administrative group or in a separate structure.

The outlook from the infirmaries and wards should be unobstructed by buildings, and the site should be so chosen that the views may be pleasing and restful to the patient.

In addition to the usual farm buildings, especial attention should be given to the erection of sanitary cow barns, and every facility provided for the cleanly collection of the milk and for its proper cooling. Patients should not have access to the cow barns or pastures.

Grounds.—The grounds about the building should be laid out with carefully graded walks, that the earliest exercise may be graduated and readily adapted to the patient's strength. Frequent seats and resting places should be provided where the patient may rest sheltered from the wind or direct rays of the sun. There should be an abundance of shrubs and flowering plants, which will not only be a source of pleasure to the patients, but the care of which may be made a means of employment and interest to those who are sufficiently convalescent to be benefited by some light work. On the well-sodded lawns such out-of-door amusements may be allowed as do not call for too active exercise, and here such games as lawn-bowls, croquet, archery, tether-ball, quoits, etc., may be enjoyed when prescribed by the physician.

ADMISSION OF PATIENTS.

The sanatorium being designed for the treatment of incipient cases only, it is of vital importance to the success of the undertaking that none but suitable cases be received. There should be two or three examining physicians appointed in each county to whom applicants for admission should be sent for physical examination. The reports on such cases as are found suitable for admission should be sent to the superintendent of the sanatorium and placed on file. As rapidly as vacancies occur these patients should be admitted in the order in which the reports from the examining physicians have been received. No patient should be retained in the sanatorium who is found, on further observation, to be unsuitable for treatment. Those cases should be excluded which have intestinal, renal or joint complications; a temperature running above 103 F., active laryngeal tuberculosis; extensive consolidation in both lungs; cavities, with constitutional disturbances, excessive in proportion to the area of lung involved. The favorable cases are those with slight constitutional disturbance and fair nutrition; pleuritic cases; cases beginning with hemoptysis without constitutional impairment; incipient cases. These are the classes of patients received by Dr. Trudeau at the Adirondack Cottage Sanatorium.

CLASSIFICATION OF PATIENTS.

For best carrying out the treatment and for the regulation of routine the patients should be classified according to their physical condition as follows:

1. Infirmary cases, including those with active lesions, the new patient under preliminary observation, and those suffering from intercurrent affections and exacerbations of temperature, hemorrhage or other incident of the disease.
2. Patients not on exercise, but who may be allowed some association with other patients.
3. Patients on limited exercise.
4. Patients who are sufficiently convalescent to be allowed full exercise and who are capable of performing some light occupation.

So far as possible this classification should be observed in the housing of the patients. Too free intercourse between the patients whose activity is restricted and those in the free exercise class creates an unreasoning and unreasonable discontent among the former, disarranges the discipline of the sanatorium and is a bar to progress in treatment.

The lines on which classification are drawn and the rules governing each class should be made so far as possible with a view to the patient's comfort and happiness, and a spirit of kindliness should prevail in all our dealings with them, but the classification must be rigidly adhered to and the rules strictly enforced. The whole environment should be made cheerful and the patient brought to have an interest both in his own welfare and in the best interests of his neighbors, but with the mutual understanding that the ultimate good to all concerned can be attained only by a careful observance of the discipline by every individual.

GENERAL PLAN OF TREATMENT.

In the practical application of the treatment each case must be considered separately, and the methods followed be adapted in a large measure to the needs of the individual, as determined by a rigid physical examination and a careful observation for several days under the care of a trained nurse (one trained for this particular work). Every patient on admission should, then, be thoroughly observed and the details of his treatment carefully formulated that he may follow a carefully prescribed course from the beginning.

The following general plan of treatment is subject to such individual modifications as may be from time to time judged to be desirable.

1. *Rest.*—The recumbent or semi-recumbent position and bodily and mental repose must be insisted on so long as the rectal temperature remains above 100 degrees F. All things which have a tendency to raise the pulse rate above 100 must be forbidden At times mental rest must be absolute. At others a little light

reading, a game of chess, of cards or other quiet pastime may be enjoyed. The effect of all these things must be watched, and everything denied which is followed by any undesirable result. We must guard against too long continued or exciting conversation, tiresome visiting with friends, etc. It is the careful, judicious regulation of these little things that make for success in our management of the case.

The patient may be in bed or in a reclining chair. His position should be changed at intervals of an hour. If his condition is such that he can be dressed and use a reclining or steamer chair, he should get up and walk eight or ten paces every hour.

2. *Open Air.*—The patient must be in the open air as many hours as possible. He should average eight hours out of doors every day; in summer ten hours may easily be thus spent, in winter often not more than six; but at all seasons his attempt must be to attain the maximum in this regard. When possible, he should sleep in the open air also, and if he sleeps indoors it must be with windows open wide and the bed screened from draughts. This he must do, no matter what the weather, always, of course, with proper protection from wind, rain and cold. The infirmary should be provided with such means of egress and covered verandas that bed patients may be taken out into the open air whenever there is not a positive contraindication to such a procedure, the bed being wheeled directly out on the veranda. (Fig. A.)

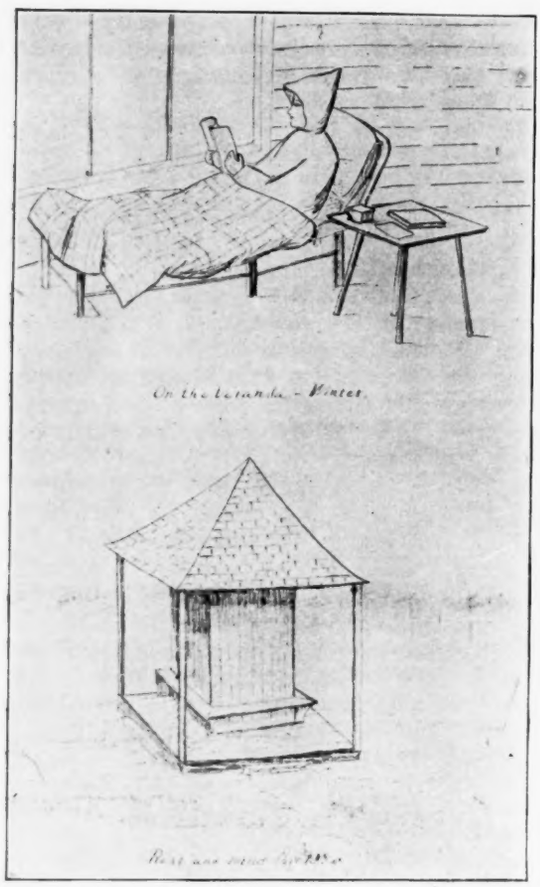

Figure A.

3. *Diet.*—The arrangement of the dietary and the preparation of the food should receive the careful personal attention of the physician. This is a matter of vital importance to the successful management of the tubercular patient. A person thoroughly trained in dietetics should be in immediate charge of the food preparation, giving attention not only to the quality of the food and its proper cooking, but also to the details of its service at proper temperature, and in a tempting, appetizing manner. As a rule, the appetite is poor without an actual digestive derangement, and the patient must be stimulated to eat by persistent persuasion, attractive service and sometimes catering to his fancy, before resorting to medication.

Fat and fat-forming foods must be administered freely, carbohydrates and proteids being given in due proportion. Milk, cream, butter, eggs and potatoes served in varied and pleasing ways offer the best means of attaining this end. Fresh meats, fish, vegetables, cereals and fruits should be freely supplied. The diet should be mixed and varied from day to day. The following dietary is given by Lucas to indicate the amount of the various forms of food necessary:

Breakfast.—Half a pint of porridge, with two ounces of sugar; two rashers of bacon, and two eggs (or chop, steak or fish), bread, four ounces; butter, two ounces; half pint of tea or coffee; milk, one pint.

Mid-day Meal.—Soup; fish, three ounces (or poultry), with butter, two ounces; two or three slices of meat, four ounces; potatoes, four ounces; cabbage and other vegetables, four ounces; pudding, six ounces; cheese, two ounces; bread, four ounces; butter, two ounces; milk, one pint.

Evening Meal.—Two eggs (or cold meat or fish), bread, six ounces; butter, two ounces; jam; half a pint of tea; milk, one pint.

The diet must be largely modified, according to individual needs. During febrile attacks a liquid diet must be prescribed and should consist of milk, raw eggs, meat broths, cocoa, meat juice and other concentrated liquid foods. At times the predigestion of food will be called for and sometimes lavage. Patients much reduced in flesh should be given milk with eggs between meals, and the feeding should be forced until the normal weight is gained. This being attained the diet should be but little in excess of the ordinary, as too much stuffing is liable to lead to digestive disturbance, with consequent loss of weight and a temporary relapse.

4. *Exercise.*—From the beginning of the treatment routine, systematic exercise should be practiced in order to increase the lung expansion and the volume of air habitually respired. A patient in bed may be taught to take eight or ten slow, deep inspirations, hold the breath a moment and then forcibly expire. He should breathe through his nose and take the exercise several times a day at stated intervals. The following respiratory exercise, given by Knopf,* is excellent for increasing the chest expansion, and can be practiced by nearly all class of patients.

Stand straight, with heels together, chest out and head erect.

1. Take a deep, slow inspiration, beginning with the abdominal muscles, and then expanding the chest to its fullest capacity, at the same time raising the arms from the sides to a horizontal position (Fig. 1). Hold the breath a moment and then lower the arms, at the same time making a somewhat forcible expiration.

2. A similar exercise, except that the upward movement of the arms is continued until the hands meet above the head. (Fig. 2.)

3. Stretch the arms out as in swimming, the dorsal surfaces of the hands touching each other. During inspiration move the arms outward until they meet behind the back, bringing them forward again during expiration. (Fig. 3.) This

*S. A. Knopf: Prophylaxis and Treatment of Pulmonary Tuberculosis, P. Blakiston's Sons & Co. 1899.

exercise may be made more effective by the patient rising on his toes during inspiration, and descending during expiration.

4. Place the hands on the hips with the thumbs toward the front. Bend slowly backward as far as possible during inspiration. Hold the breath and remain in this position a few seconds, then rise somewhat rapidly during the expiration. (Fig. 4.)

Follow each respiratory act by a forcible secondary expiratory effort, pressing the thorax with the supinated arms to expel as much as possible of the supplemental air.

Massage and Swedish movements should be considered as forms of exercise and be brought into service during the first part of the treatment.

When the rectal temperature does not go above 100 F. in the afternoon the patient may be allowed limited walking exercise. At first a walk of a few rods may be taken and the rectal temperature determined one-half hour thereafter. If it is not elevated the exercise may be allowed regularly, and gradually increased, but must always be under careful regulation by the physician, and due regard paid to the effect on the temperature and other symptoms. No active muscular exertion must be indulged in until convalescence is established, but limited participation may be allowed in the various forms of less active lawn games, provision for which has been previously mentioned. Exercise may also be obtained by occupation of the patients in light gardening, the care of lawns and flowers, some of the farm work, and also, in the case of women, in the work of the household.

5. *Bathing.*—On rising in the morning the patient should take a cold sponge bath or at least sponge the body to the waist with cold water. He should then rub himself briskly with a coarse towel until the skin is red and warm. If at first the cold water produces too much shock and there is no proper reaction, the use of a dry rub with a coarse towel should be substituted for the cold sponging. After a few days the dry rub should be preceded by sponging with lukewarm water, a few days later by alcohol and water, and then by water the temperature of which is reduced about 5 degrees each day until cold water at a temperature of 45 to 50 is used, or as it comes from the tap. The same method of bathing should be used for infirmary patients; the water and the friction being applied by the nurse. For cleansing purposes a moderately warm bath should be used twice a week and this should be followed by a cold affusion and friction of the skin of the whole body. Shower, spray and needle baths are excellent for stimulating nutrition and hardening the tissues or increasing the resistance to cold. The sanatorium should be equipped with hydrotherapeutic appliances for the administration of various forms of baths and douches in selected cases.

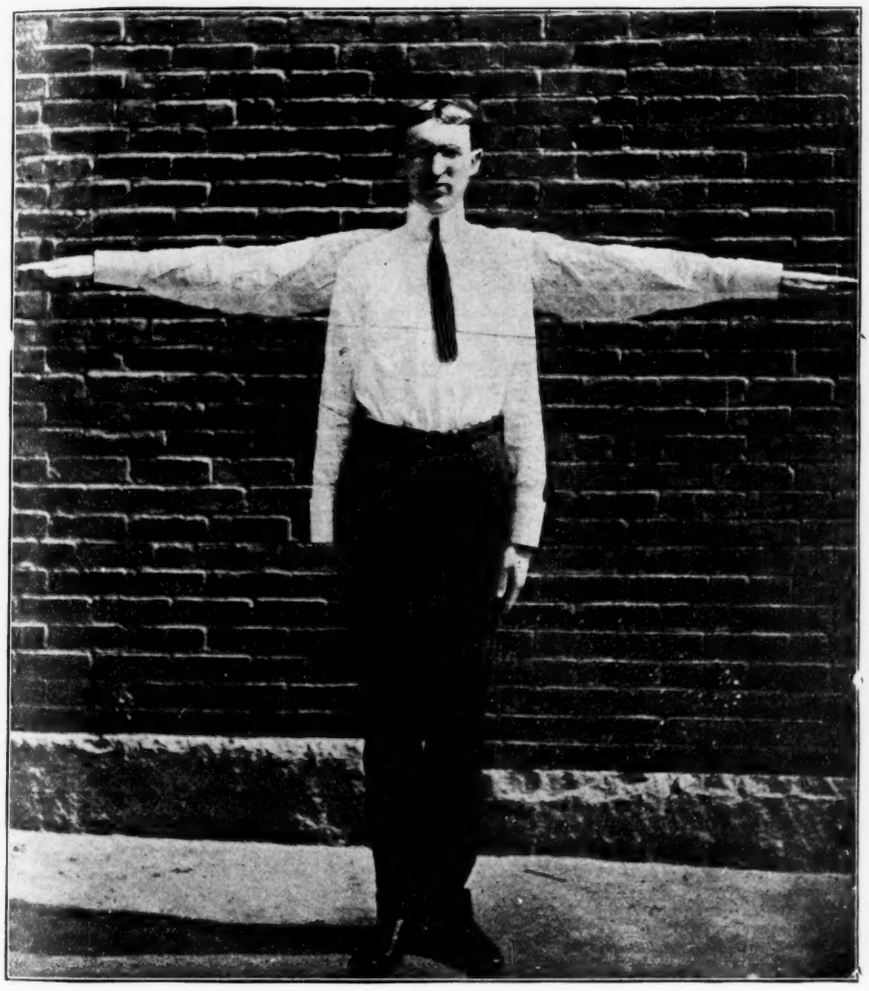

Figure 1.

Figure 2.

6. *Sleep.*—The patient should retire at 9 o'clock and remain in bed until 6:30 a. m., between which hours absolute quiet should prevail in the sleeping quarter, thus allowing nine and one-half hours for sleep. Those who have suffered from insomnia generally rest well when taking the open-air treatment, particularly when sleeping out of doors. Being constantly in the open air during the day is conducive to sleep, and hypnotics will seldom be required. Gentle, cool sponging of the head and shoulders, or of the entire body, or cold compresses applied to the abdomen or extremities and covered with a flannel bandage are often efficient in inducing sleep. In more obstinate cases, wet packs, or massage, local or general, should be tried before resorting to hypnotic remedies.

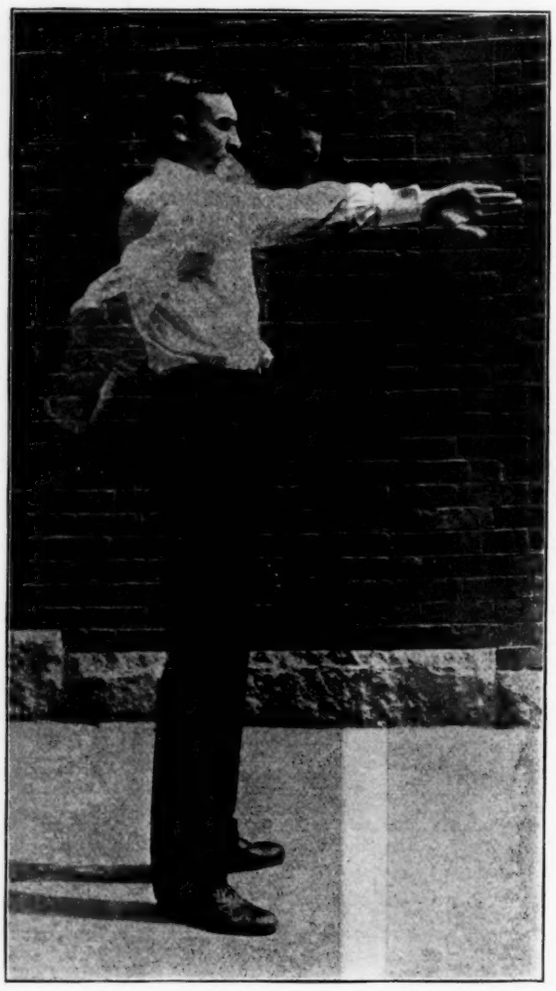

Figure 3.

7. *Symptomatic Treatment.*—In every case there is present, or constantly arising, some condition, anemia, malnutrition, digestive disorder, cough, hemorrhage, pleurisy, or other symptoms which require careful remedial treatment, but the discussion of which does not come within the scope of this paper. I would call attention, however, to the importance of maintaining the entire digestive tract in a healthy condition for the proper digestion of the increased amount of food taken and the thorough removal of waste Constipation and consequent autointoxication must be guarded against. The teeth should be put and kept in good repair, and systematic attention given to the hygiene of the mouth.

DISPOSAL OF SPUTUM.

The thing of greatest importance in the sanitation of tuberculosis is the systematic and complete destruction of the tubercle bacilli. Since the bacilli are confined to the sputum in cases of incipient pulmonary tuberculosis, the thorough destruction of this excretion will effectually prevent the spread of the infection. Not only must great care be exercised in the collection of the sputum, but also the utmost cleanliness must be observed in the care of the utensils used and the cleansing of the hands, person and clothing, both of patients and nurses.

Every patient must be provided with a small sputum cup or flask, made of such material that it can be economically destroyed or thoroughly cleansed by antiseptics or by boiling. A useful form of cup is one made of manila paper, which is supported in a metal frame with handle and cover. (Fig. 5). This cup is inexpensive and can be burned after use, and the frame well disinfected. When the patient is taking exercise and is off on a walk a more convenient receptacle is a pocket flask like the Detweiler or the Knopf flask. (Fig. 6.) These may be made of glass, but preferably of metal (aluminum) as the glass flasks are liable to be broken in the pocket, by dropping or otherwise, and are therefore less sanitary. A metal flask with tight joints and a properly fitting cover can be carried in the pocket, is light, inconspicuous, cleanly and can be sterilized by boiling.

Figure 4.

The patient must be taught to always use his cup or flask for expectoration wherever he may be, and whether for the reception of sputum from the lungs or saliva from the mouth. He must never be without it. It must be at his bedside at night ready for immediate use; always by him during the day, at rest in his room, among his fellows on the veranda and in his pocket on his daily walks. The flask should be used only when away from the building, the cup at all other times.

Twice a day the paper cups should be emptied, their contents mixed with sawdust and burned in a furnace or sputum crematory. The paper cup should also be burned. The metal frames should be washed in a 10 per cent. solution of carbolic acid and refilled with fresh paper cups. The contents of the pocket flasks should be mixed likewise with sawdust and cremated, the flask being washed in a 10 per cent. carbolic acid solution, and boiled for one-half hour in a 1 per cent. solution

Figures 5 and 6.

of carbonate of soda. The nurse who has charge of this operation—and it should always be done by a completely trained person—must wear rubber gloves and a washable sleeved apron during the procedures.

The use of stationary cuspidors about the buildings and grounds is not to be commended. Although many individuals pride themselves on their ability always to expectorate in the cuspidor, many are they who fall wide of the mark and even miss the target altogether. In respect to the memory of these delinquents it is well to insist on the individual use of sputum cups on all occasions. An exception might be made on the use of a cuspidor in the toilet rooms. Here is a strong temptation, which is seldom resisted, to use the hopper for expectoration. This must be forbidden, and that the restriction may be well obeyed, it is well to have a cuspidor in a convenient location raised two and one-half or three feet from the floor. Cuspidors, if used at all, should be of iron, which can be sterilized by heat; should always contain a quantity of an antiseptic solution and should have well-fitted covers to prevent evaporation or the access of flies and other insects to the contents.

If the sputum cup is spilled or sputum is deposited in any way on the furniture, floor or about the grounds or on the clothing of patients, the nurse, being notified at once, should immediately remove the infectious material and properly disinfect the place before the sputum has time to dry.

If a patient is suffering from intestinal or bladder tuberculosis, or if there are any infectious discharges whatever, these should receive the same thorough antiseptic treatment as in a case of typhoid fever.

KITCHEN AND LAUNDRY STERILIZATION.

All knives, forks, spoons and dishes on which the patients are served must be disinfected after every meal. This can be accomplished by means of a sterilizer after the pattern of a dish washing machine, in which the dishes may be immersed, first in a strong, hot caustic lye and then in boiling water, on being removed from which they dry rapidly by evaporation.

At the table each patient should have his own napkin and rings or other device should be used so that these do not become mixed. The table linen and all bed and body linen should be sterilized by steam before going through the usual laundry operations. Clothing soiled with tubercular sputum, vomitus, etc., should be soaked in 10 per cent. solution of carbolic acid for an hour before being sent to the laundry. The patient's outer garments should be subjected to sterilization by formaldehyd gas at stated intervals, and on discharge from the sanatorium all his belongings and his wearing apparel should be similarly treated.

HOUSE DISINFECTION.

Experiment and careful observation have demonstrated that the wall and floors of properly conducted sanatoria are comparatively free from tubercle bacilli. Also that the walls seldom become infected above a distance of three feet from the floor. The floor should be gone over daily with a mop moistened with a 1 per cent. solution of chlorinated lime and the mop put into boiling water after use. Once a week the furniture and the walls, to a height of three or four feet, should be wiped with cloths moistened with 1 per cent. solution of chlorinated lime, and the cloths burned. The floors and walls to a height of six feet should receive a weekly scrubbing with soap and water. Once a month the rooms should be disinfected with formaldehyd gas. The various articles in the room should be left in place and books should be stood on end and opened so as to separate the leaves freely. Any one seeing a tubercular patient reading and coughing as he reads and noting in this act the spraying of the open page with fine droplets of mucus, will realize the danger which arises from the drying of these droplets containing, as many of them do, the tubercle bacilli. The frequent disinfecting of books used by patients, then, becomes a matter of importance. All rugs, mattresses and pillows should be exposed weekly to the bright sunlight for several hours.

In the construction of the building all corners should be made round for most efficient cleansing.

PERSONAL HYGIENE.

Mention has been made previously of the proper care of the skin and the hygiene of the mouth. The use of

an antiseptic mouth wash with a tooth brush before and after meals should be enjoined, and also the proper cleansing of the hands and face before each meal, to avoid ingestion of bacilli in saliva dried on the skin. The nails, being such frequent harborers of bacteria, must be kept well manicured, and the use of the nail brush go with every washing of the hands. It is best that the patient be clean shaven, but when the retention of a mustache or beard is preferable to the patient, it should be kept closely trimmed and washed several times daily. The patient must be instructed in the danger of swallowing sputum, and the habit broken up, if present.

The clothing should be as light as is consistent with proper warmth. Over-burdening the body with clothing must be avoided, as it provokes perspiration, increasing the danger of "taking cold," is not cleanly and limits respiratory expansion. Mufflers, chest protectors, leather vests and jackets must be discarded. Absorbent materials should be worn next the skin and changed frequently. The underclothing worn during the day should be entirely replaced at night. The skirts of the women patients and employes should be of such length that they do not sweep the ground in walking. So long as corsets are made they will be worn, but their construction and adjustment should be such as will allow a measure of abdominal breathing and good chest expansion. The feet should be warmly clad with closely woven stockings and comfortable, well-fitting shoes and carefully protected from moisture.

METHODS OF RECORDING PROGRESS.

On admission of the patient to the sanatorium a full record of the case should be started on suitable forms. Hospital experience has demonstrated the superiority of the envelope system of loose leaf records, which may be fastened together in book form, over the older case book system. The former system is more flexible and allows of a full and complete record in compact form and available for ready reference. The accompanying forms are patterned closely after those designed by Dr. Herbert Maxon King for use in the Loomis Sanatorium. Form No. 1 is a general summary of the case valuable for reference and for statistical purposes, and is not fully filled up until after the discharge of the patient. The other forms are self-explanatory, giving in order a full family and personal history; history and symptomatology of the present illness; results of examination of the entire body covering two or more forms; records of temperature, pulse and respiration; weight and sputum records; results of examination of urine, blood and stomach contents together with blank forms for record of symptoms, treatment and the régime followed.

The weight should be recorded regularly every one or two weeks, always at the same time of day, the patient being weighed stripped, and clad only in a dressing gown of known weight. The sputum should be weighed every two weeks and a record made of the amount in cubic centimeters. Once a month the sputum should be examined for tubercle bacilli, elastic tissue and note should also be made of its character, whether mucoid, mucopurulent or purulent; the presence of staphylococci, streptococci or other bacteria, with their relative number. In case of failure to find the tubercle bacilli in any examination, specimens should be obtained on three successive days, and several smears from each specimen carefully examined.

The blood should be examined on admission and once a month thereafter in cases showing any abnormality in red or white corpuscles or hemoglobin content.

The urine should receive a thorough examination on admission, both chemical and microscopic. Once a month thereafter a record should be made of the twenty-four-hour amount, the color, reaction, specific gravity; the presence or absence of albumin, sugar, indican and the diazo-reaction, the latter being of considerable prognostic importance.

The thorax should be examined once a month and at such other times as the symptoms may suggest, the physical signs being recorded on a diagram readily made by means of a rubber stamp, thus showing graphically the exact extent of the lesion and the location of the physical signs found. Previous to discharge the patient should receive the same thorough physical examination of the whole body as on admission for purposes of study and comparison. The first and last examination should include a careful system of measurements of chest expansion, lung capacity and physical development.

EDUCATIONAL WORK.

The work of a sanatorium for the treatment of incipient tuberculosis should not be only curative, but educational. The daily sanatorium life is an education in itself, but in addition simple, clear instruction should be given on personal hygiene, home sanitation, prophylaxis of tuberculosis, and rules laid down for the guidance of the patient after leaving the institution. The vast majority of the patients have too little realization of the necessity of careful sputum disposal and hygienic surroundings, and every effort should be made to impress on their minds the importance of prevention and the possible eradication of the disease, which can only be accomplished by the active co-operation of the enlightened and educated public. As a means to the accomplishment of this utopian result I would suggest the following topics of a course of talks to the patients. These should be very informal, and should be given in simple language and illustrated whenever possible by models, diagrams, charts, pictures and in all other ways which would add to their educational value and popularity. They should be supplemented by a pamphlet containing directions for carrying on the treatment at home, prophylactic measures, health notes and facts about tuberculosis, which should be given to each patient on discharge.

1. Air and sunshine. Ventilation.
2. Structure of nose, throat and lungs. Proper breathing.
3. Bacteria, what they are; how they grow; diseases caused by them.
4. The tubercle bacillus; how it enters the body; condition favoring its growth, etc.
5. Disposal of sputum at home.
6. House disinfection.
7. Food and digestion.
8. Exercise.
9. Bathing and care of skin.
10. Clothing day and night.
11. Personal hygiene and habits.
12. Rearing of children of tuberculous parents.
13. Amusements, things and places to avoid.
14. Occupation for consumptives.
15. The life régime of the consumptive.

These talks should be short, not more than one-half hour in duration and should be so arranged that every patient may attend them before his discharge.

DURATION OF SANATORIUM RESIDENCE.

The following data should be taken into consideration in determining the arrest of the morbid process in the lungs:

1. Absence of symptoms and physical signs of active disease.
2. Absence of tubercle bacilli from the sputum in repeated examinations.
3. Return to normal strength and maintenance of body weight at or above normal.

The length of time necessary for the accomplishment of these results will depend on the progress made by the disease before admission and the zeal which the patient displays in carrying out the prescribed treatment. The more conscientious he is in living up to the spirit and the letter of the régime, the more immediate and certain will be the results. Except in the most incipient cases six months should be put down as the minimum time to be spent in the sanatorium. There are occasional patients whose symptoms become quiescent and who can be discharged after a residence of three months, continuing at home the routine which they have learned. Many cases will show signs of active disease after twelve months' residence. This, as a rule, should be the maximum duration of residence in a public sanatorium where there is constant great pressure for the admission of recent cases. After this length of time any person of ordinary intelligence should be able to carry out in practice at home the principles with which he has become familiar by association and teaching, and the way should be made for the reception of others who may be waiting and losing ground for want of proper guidance.

RESULTS OF SANATORIUM TREATMENT.

Some such classification as the following is usually observed on discharging patients from sanatorium treatment: Apparently cured. Lesion arrested. Improved. Not improved. Those patients are discharged as "arrested" in whom all active symptoms have disappeared, who have no cough, no bacilli, and whose temperature and weight are normal. The patients discharged as cured are those who have passed a considerable interval, usually from six to twelve months, in apparently good health.

The following figures are taken from the Seventh Annual Report of the Massachusetts Sanatorium for the year ending September 30, 1903:

	Per cent.
"Arrested" and "apparently cured"	48.97+
Improved (including all shades of improvement)	43.00+
Not improved (including one death)	7.90+

Of the incipient cases treated, 72.6 per cent. were arrested or apparently cured. There has been a steady increase in the number of arrested and apparently cured cases during the five years of the work. "The replies from former patients to our annual letter of inquiry up to the present date (Oct. 1, 1903) enable us to say that the large majority of those who were discharged from the sanatorium as arrested or apparently cured in the year preceding this, are well, and are actively at work."

The imperial health office at Berlin published in 1901 a statement as to the results of the sanatorium treatment in Germany. Out of 6,108 cases, 67.3 per cent. were able to follow their former occupation; 7.1 per cent. were fitted to earn a living at a different occupation; 14.6 per cent. were partly able to earn a living, and 11 per cent. were unfitted for work. The older institutions of Germany, Gorbersdorf and Falkenstein, report apparent arrests in 60 per cent. of the cases treated. Results at the Adirondack Cottage Sanatorium show over 70 per cent. of arrests or apparent cures.

These are the results, of course, in selected cases, only the incipient cases or those not far advanced in the disease being received in these sanatoria. The same methods applied to more advanced cases, however, leads to very favorable results, about 50 per cent. of such cases being very greatly benefited, and some cures resulting even in cases seeming most unpromising. Statistics drawn from resorts receiving all classes of cases, even the most far advanced, show an increase in weight and general health, and decrease in fever, cough and expectoration in 80 per cent. with a return in approximately normal health in over 30 per cent. Thus we see that while the sanatorium treatment is beneficial in all stages of tuberculosis it is the earliest incipient cases which derive the greatest benefit, and are returned with the least delay to their homes and occupation. Thus, the very great importance of an early diagnosis is emphasized, and there is no question but that with earlier recognition of the disease by the use of all diagnostic measures on the slightest suspicion, and the immediate resort to sanatorium treatment a very much larger proportion of cures will be effected, and much time, expense and many valuable lives saved.

FOLLOWING OF PATIENTS AFTER DISCHARGE.

It is important to keep track of patients after their discharge, and to ascertain from time to time their condition and the ultimate result. At intervals of three, six and twelve months after discharge the patient should be required to report to the sanatorium his present condition on a printed form mailed to him for the purpose; or to report in person to the nearest examining physician and a physical examination made, the findings of which should be sent to the sanatorium and put on file with the record of the patient. Thus there would be obtained a record covering a period of two years following his discharge. To supplement this, inquiry should be instituted as to the whereabouts and condition of discharged patients at intervals of two or three years. In this way there would be collected in time valuable statistics as to the ultimate results of sanatorium treatment showing the per cent. of permanent cures, the duration of arrests, the frequency of relapses, the length of life, the causes of death and other facts of importance in the guidance of future therapeutic work.

CONCLUSION.

In conclusion I would call attention to the importance of continuance by the patient of a hygienic life after he leaves the sanatorium. In his home and place of work there must be proper ventilation and cleanliness, the latter term including adequate disinfection. These things are necessary for his own safety, for the protection of his family and his business associates. His food must be of the most nourishing, and his whole life well ordered and lived after the manner his institution experience has taught him. Not only should he practice these things himself, but he should be an apostle of the gospel of fresh air and sunlight to his fellowmen. And to the accomplishment of all this he should be strenuously aided by the physicians and sanitary officers of every community. "If," says Knopf, "we wage a vigorous war on all that is insanitary in our cities, towns and villages; if we endeavor to raise the coming generation to be a strong people, able to resist the invasion of the pathogenic micro-organism which may escape the watchful eye of the sanitarian; if we can, by the creation of sanatoria for all classes, rich and poor, and by carrying out the hygienic, dietetic, educational and symptomatic treatment of all consumptives outside of such institution, cure the curable and make harmless the incurable tuberculous patients, the problem of dealing with the most widely spread of all diseases will have been solved."

PULSATING EXOPHTHALMOS; SUCCESSIVE LIGATION OF BOTH COMMON CAROTID ARTERIES; DEATH.*

HOWARD F. HANSELL, M.D.

PHILADELPHIA.

Patient.—S. C., a strong, healthy-looking girl, 22 years of age, applied at the eye dispensary of the Jefferson Medical College Hospital July 30, 1903. She complained of pain in the left eye and left side of the head, and of a constant subjective noise.

History.—On the evening of July 3 she was struck on the inner angle of the right orbit, between the internal canthus and the nasal bone, by the handle of a heavy butcher knife, thrown from a distance of about 15 feet. Both lids of the right eye were bruised and slightly cut, and the nose bled, but other than these insignificant injuries she suffered no immediate ill effects. On the following day she noticed a noise in the head, which she referred more particularly to the *left* side. Two weeks later the left eye became prominent.

Examination.—At the time of the first examination proptosis was marked, pulsation of the eyeball was present, and a bruit was distinctly heard by applying a stethoscope to any part of the head, or over the large vessels on both sides of the neck, and louder over the closed lid of the left eye. It was diminished by pressure on the vessels of the neck. A distinct thrill was communicated to the finger, laid on the termination of the nasal artery on the nasal bone. A superficial vein in the outer half of the left upper lid was greatly dilated and tortuous and the lid was discolored and swollen. The eye was dislocated outward and downward. Movements in all directions were limited, particularly inward and upward, and diplopia was noticed in all parts of the binocular field. The sclera was deeply injected, the media clear, the pupil dilated and slowly reacting and the interior of the eye healthy. Tension normal. The pain in the orbit was constant and severe and increased by the recumbent position. The eyeball could easily be replaced in the orbit, but the exophthalmos returned immediately after the compression was relaxed.

September 3. L., pupil measure, 5 mm.; R., 3 mm. The left reacts sluggishly to light and accommodation, V. = 6/6, with correction of + 3 D. There is no change in the appearance of the fundus; the optic papilla and the retinal and choroidal vessels remain perfectly normal. There was a slight systolic murmur over the apex of the heart.

Course of the Disease.—After observation in the out-patient department for several days, the symptoms increasing in severity, Miss C. was admitted to the hospital. She was put to bed, kept absolutely quiet, and free from all physical exertion, and given large doses of potassium iodid.

During this time Dr. W. W. Keen and Dr. S. S. Cohen confirmed my diagnosis of arteriovenous aneurism in the cavernous sinus. The eye became more prominent and less mobile, the veins of the lid more and more injected, the largest measuring 2-3 mm. in diameter, the noise and pain more unendurable in spite of treatment. Pulsation and bruit could be readily observed at the nasal side of the internal canthus, and with the stethoscope applied to the closed lids, a continuous pulsation with distinct increase in the sound with each contraction of the heart was heard. This bruit could be detected not only over the left eyeball and temple, but on the entire left neck, cheek and over the right eye and cheek, and at a point under the right jaw.

Urine.—Amber, 1,012, neutral, a trace of albumin. No sugar, urea 1.3 per cent., triple and amorphous phosphates, squamous and columnar epithelium, a few leucocytes and erythrocytes. No casts.

After a few days of rest and medical treatment she left the hospital, unimproved. She re-entered Sept. 24, 1903,

SURGICAL REPORT BY DR. KEEN.

I saw her again on September 25. I confirmed the observations made by Dr. Hansell, and agreed with him in the suggestion that the left carotid should be tied. Before this could be done, the exophthalmos had evidently increased and the vein in the upper lid was distinctly more pronounced and more tortuous. The thrill and bruit also were more marked than before.

Operation.—September 30. I ligated the carotid with silk on a level with the cricoid cartilage. I did not see the descendens noni nerve, the jugular vein, nor the pneumogastric nerve. Dr. Hansell examined the eye-ground by the ophthalmoscope as I tied the carotid. The instant that the ligature was tightened all the arteries faded so that they were invisible. Both he and I afterward examined for bruit and thrill and found both gone. At the time of the ligation of the artery also the blood pressure was observed, by the Riva Rocci apparatus. It rose 15 mm. and the rise was maintained after the operation.

Result.—Her temperature never rose above the normal and she made a perfect operative recovery in a few days. (The aneurismal bruit returned, so that it was perceived through the stethoscope as a faint continuous murmur at 4 p. m. on the day after the operation, 25 hours after the operation was concluded. The exophthalmos diminished greatly immediately after the operation, though the eyeball was still somewhat more prominent than the other, so that it was only moderately noticeable. She said she subjectively perceived the sound, but that it was very slight and far less annoying than it had been before the operation. She left the hospital Oct. 10, 1903.

She re-entered the hospital on November 8, on account of the recurrence of all her symptoms, especially the annoyance caused by the bruit. The exophthalmos, also was distinctly greater than when she left the hospital. Dr. Hansell observed for the first time, also, distinct retinal hemorrhages so that she was going from bad to worse, and the integrity of the eye was threatened. This forced us to a second operation immediately, though I had hoped not to tie the other carotid at all, or at least, to defer the ligature for several months, so as to allow of the establishment of the collateral circulation.

Second Operation.—November 11. In view of the retinal hemorrhages, increase of bruit and of the exophthalmos I ligated the right carotid, under local anesthesia, by a solution of adrenalin and eucain. The only time when she had the least pain was when I was separating the sternocleido from the tissues about it by blunt dissection, so as to expose the artery. The solution had not infiltrated so deeply as this. She expressed herself as much better satisfied with this method of anesthesia than with the ether. When I had sutured the wound, I was very much struck with the absolutely blanched appearance of the skin as a result of the adrenalin. It was a dead white over an area which extended above, below, and to a considerable distance both to right and left of the incision. At the moment of tightening the ligature, Dr. Hansell observed the eye ground of the right eye. The moment the ligature was tied, the arteries disappeared as before.

Result.—So far as the wound was concerned, it healed by primary union without any rise of temperature whatsoever. On the second day after the operation she showed a little drowsiness. This deepened and on the third day was very marked. That day, November 14, she had a series of convulsions during the afternoon and evening. On the 15th (the fourth day), she was paralyzed on the left side, and a number of convulsions occurred, becoming finally almost continuous. She died at 10:26 a. m., November 16. Dr. Hansell and I urgently requested a postmortem, and saw the family personally, but they absolutely refused it.

While there may be other causes for pulsating exophthalmos, rupture of the carotid artery in its passage through the cavernous sinus is stated by de Schweinitz to be the pathologic condition in about 60 per cent. of the 200 cases reported up to 1899. In the present case

* Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

it is impossible in the absence of a postmortem to be absolutely certain that this was the condition, but it is probable for the following reasons: First, the pulsating exophthalmos; second, the continuous throbbing bruit which was markedly increased during systole and diminished, but did not disappear during diastole of the heart; this would seem to be the most important reason; third, the thrill which accompanies an arteriovenous aneurism; fourth, the passive enlargement of the veins.

I regretted extremely the necessity of ligating the opposite carotid so early as six weeks after the first ligature, for I greatly feared that the collateral intracranial circulation might not be well established, and that so early a ligation might prove fatal. The increasing retinal hemorrhages which threatened the integrity of the eye, however, compelled us to do the second operation.

Murray[1] reviews the subject of pulsating exophthalmos at some length. Seventy-one per cent. of the 197 cases reported up to 1898 followed traumatism, and 29 per cent. are due to existing chronic endarteritis of the internal carotid artery. In speaking of the therapeutics, he says that of 53 cases treated by digital compression, 15 were cured or improved; by ligature of the common carotid 51 per cent. were cured, 17 per cent. improved, 17 per cent. unimproved, 10 per cent. died. The mortality following the operation is only 10 per cent., while the death rate following the same operations for the cure of other conditions than pulsating exophthalmos is 25 per cent. (Wyeth gives 43 per cent. in 789 cases). He quotes Boden in reference to the frequency and mortality of double operation, who reported in 1899 that there had only been 6 cases of ligature of both common carotids, the interval between the two operations in 4 of the 6 cases being thirty days, fifty-four days, sixty days, thirty-two days. Five of the six patients were cured or improved, and none died.

The most recent compilation of the papers that have been published on the subject is that by Barnard and Rugby.[2] These writers report a case in which a bullet passed through the roof of the mouth to the base of the skull, which was perforated and smashed. The left side of the face was paralyzed and the left pupil was dilated and fixed. The lids were swollen and very prominent, all the external ocular muscles paralyzed, the cornea insensitive and the eye pulsated vigorously. A thrill was felt and a bruit heard over the closed lids. Ligature of the left common carotid artery was performed. The proptosis diminished and the pulsation disappeared for four days, recurred and disappeared again in ten days, but the eye was blind from opacity of the cornea. Two months later the patient complained of headache. The bullet, which was located by the *x*-rays above the petrous bone in the temperosphenoidal lobe, was probably surrounded by purulent degeneration of the cerebral matter. The postmortem showed the presence of a double sacculated aneurismal dilatation in the intracranial course of the internal carotid artery. There was no arteriovenous communication in the cavernous sinus. The interest in this case lies in the presence of all the typical signs of traumatic pulsating exophthalmos due to the unusual lesion of a sacculated aneurism of the carotid artery. The authors collate statistics both in favor of and against ligation of the common carotid. Rivington[3] in 44 cases, both idiopathic and traumatic claimed about 50 per cent. of cures. LeFort[4] claimed 61 per cent. successful, of which 54 per cent. were cured. The results of compression are much less favorable, according to LeFort, who gives 86 per cent. of failures.

This author says: "If the exophthalmos is double and ligation on one side has failed, and if pressure on the other side checks pulsation and bruit, one should not hesitate to tie the other carotid." C. S. Bull[5] says: "Ligation of the carotid is the oldest operation for the relief of pulsating exophthalmos, and has given the most satisfactory results. As a rule, the pulsation and bruit disappear immediately, any existing tumor collapses, the eye often sinks back into the orbit, and the tension and distension of the veins in the orbit diminish. Faint subjective sounds may return after a few hours, but the other symptoms soon entirely disappear. The swelling of the lids and the chemosis vanish, the exophthalmos lessens, the motility of the eyeball returns, and the vision is gradually restored. The swelling and cloudiness of the optic disc subside, the retinal veins become less engorged and tortuous and the hemorrhages are absorbed. Paresis of one or more of the ocular muscles sometimes remains for a long period unchanged. In most of the cases, the cure is complete in six weeks."

REMARKS.

The return of the affection after ligation may be due to deficient coagulation of blood, or the veins may close on the same side, but the blood finds its way to the other side through the circular sinus, or there may be a fresh aneurism, or the superior ophthalmic vein of the side first affected has been obliterated at its opening into the cavernous sinus by the thrombosis of the sinus produced by the ligation of the carotid. The cavernous sinus subsequently regains its permeability, and the still yielding cicatrix in the arterial wall yields and opens again. The arterial blood again enters the sinus, passes through the circular sinus into the cavernous sinus of the opposite side, and produces here the symptoms of pulsating exophthalmos.

As against ligation, it is urged that there are records of several cases in which the physical signs and symptoms had existed a long period with little marked effect on the well-being of the patient or little danger of death. Among them is a traumatic case by Williamson[6] that had persisted twenty-three years; one by Frost,[7] twenty-one years; one by Brown,[8] sixty-five years.

As a second argument is the recurrence of the signs and symptoms after ligation, and as a third is the possibility of a spontaneous cure.[9] Rivington's statements of postmortem findings in 12 cases are interesting. In no case was there simple traumatic aneurism; in 3 direct communication between the artery and vein in the cavernous sinus; in 1, aneurism of each ophthalmic artery; in 1 simple dilatation of the carotid artery; in 8, the ophthalmic veins enlarged and varicose. Up to 1898, 197 cases were published without settling the question of cause, course or treatment.

1. Annals of Surgery, March, 1904.
2. Ibid., May, 1904.
3. Medico-Chirurgical Trans., 1875.
4. Rev. de Chirurgie, 1890.
5. Norris and Oliver's System.
6. British Med. Jour., 1894.
7. Ophthal. Soc. Great Britain.
8. Ophthal. Trans., vol. ix.
9. C. A. Silver: New York Med. Jour., April 9, 1904.

INTERMITTENT EXOPHTHALMUS, WITH REPORT OF A CASE.*

WM. CAMPBELL POSEY, M.D.,
PHILADELPHIA.

Patient.—C. McL., a drug clerk, 21 years of age, consulted me eighteen months ago at the Wills Eye Hospital, on account of a feeling of "looseness" in the left eye, and for the correction of a tendency which the eye had to drop forward when he inclined his head forward or made slight muscular exertion.

History.—The patient said that his mother had noticed when he was but 4 years old that when he stooped to tie his shoe laces the left eye became swollen, but recovered its natural appearance as soon as he regained the upright posture. This tendency to protrusion of the eyeball persisted until he was 12 years of age, when he had a severe fall, striking his head, after which it was thought that the eye fell forward oftener and to a greater degree than before the accident. Of late years he had remarked that the eye could be made to protrude by simply holding his breath. There had been no pain nor inflammatory symptoms in either eye at any time and vision was unaffected except for a slight blurring in the left eye at the time of the protrusion. It was elicited that the patient had had diphtheria when he was 3 years of age, but it could not be ascertained whether the peculiar behavior of his left eye antedated this affection or not. Other than this attack of diphtheria, his health had been good. His family history was also good and there was no record of an ocular affection similar to his own in any of his relatives or ancestors.

Examination.—With the patient sitting quietly in a chair (Fig. 1), with his muscles relaxed, both eyes presented a normal appearance, save for a slight dilatation of the palpebral fissure of the left eye; the moment, however, that the head was bowed forward, or the breath held for a time, or pressure made on the jugular vein, the left eye began slowly to protrude from the orbit, being driven straightforward in the axis of the orbit. As the globe was proptosed, the upper lid drooped slightly, covering about 2 mm. of the upper portion of the cornea, while the lower lid fell away from the globe, showing about 6 mm. of clear sclera. If the muscular strain was continued the proptosis became even more marked, the lids becoming blue and swollen, the inferior tarso-orbital sulcus bulged out and was obliterated, and the superficial veins about the orbit became much distended (Fig. 2). Finally, the degree of the exophthalmus became so marked that there appeared danger of the globe becoming dislocated in front of the lids. The moment the strain was removed, however, the eye sank rapidly back into its place and in a few moments had resumed its natural position in the orbit.

The position of the right eye was unaffected throughout. No bruit could be felt or heard over the left eye at the time of the proptosis, and it was noted that even light pressure on the globe was followed by a remarkably easy recedure of the globe, the eye seeming to drop back further into the orbit than is the case under normal conditions. In the quiescent state the excursions of both eyes were normal, the pupils were of slightly different size, that of the right eye being 2½ mm., that of the left 3 mm.; both reacted normally to light and convergent stimuli. The ophthalmoscope revealed slight hypermetropia in both eyes and normal and similar fundi with nothing unusual in the course or distribution of the retinal vessels. At the time of the proptosis, however, it was noted that the vessels in the left eye became rounder and fuller and more cordlike, this being particularly true of the veins. The vision in each eye equaled 5/5, but at the time of the proptosis the vision in the left eye fell to 5/7½. The patient was sent to the Polyclinic Hospital for further study, and, at my request, an examination was made of the general condition by Dr. Riesman, and of the throat and nose by Dr. Freeman. Dr. Riesman's report is as follows:

"The patient is somewhat undersized and of spare build. The forehead is low; there are dark rings under the eyes; the tongue is clean and moist. The neck is large and broad, especially at the level of the thyroid cartilage, becoming narrower above. In the quiescent state, this enlargement of the neck appears to be principally due to a bulging of the sternocleidomastoid muscles in their middle third. The thyroid is palpable but not enlarged. The chest is well formed; there is a delicate fringe of distended capillaries across its lower portion, in the hypochondriac region.

"The heart boundaries are: On the right, a little to the left of the right sternal border; above, the top of the fourth rib; on the left, a line one inch within the nipple-line; below, the fifth interspace. The apex-beat is indistinctly palpable in the fifth interspace, an inch and a half within the nipple-line. Auscultation shows slight accentuation of the second aortic sound. The pulse is 92, and distinctly dicrotic. The radial artery is a little thickened.

"The liver dullness extends from the fifth interspace in the right mammary line to the costal margin. The spleen is not enlarged.

"When the patient is asked to proptose the eye, he takes a deep inspiration and holds his breath. For a short time no movement is observed in the eye; then it is forced forward, the patient's face becoming, at the same time, red and congested. The pulse slows down during the bulging, and is eventually arrested. At that time the heart sounds can not be heard; on auscultation nothing is detected except a continuous, faint hum, produced by the chest muscles, which are in a state of high tension. The cardiac arrest lasts about fifteen seconds. Rather suddenly, the heart sounds again become audible, but they are feeble and show a marked increase in rate (144). The sounds gradually become stronger and slower, until they fall to the normal number. During the proptosis, the neck becomes greatly enlarged, and the patient looks as though he had a huge goiter of the lateral thyroid lobes. The neck measurements are as follows:

	During rest.	During proptosis.
	cm.	cm.
At the top	36	37
At the middle	36	38
At the base	38	39.5

"During the respiratory arrest, the lung expands in all directions and the percussion note becomes more tympanitic. The boundary of the lung descends posteriorly about 2 cm.; anteriorly, in the right nipple-line, 3.5 cm., so that the upper border of the liver dullness is at the seventh rib. The heart dullness becomes diminished, the left border being 1 cm. within the line previously given. During the asphyxia there is also a marked distension of the veins on the backs of the hands, with increase in congestion. These veins are, however, even during rest, abnormally conspicuous."

The examination of the throat and nose by Dr. Freeman was reported as follows:

"The neck is very large at the base, so that a fifteen-inch neck band is tight. Above the collar, the neck appears normal; it is even quite small. The neck band raises decidedly with each pulsation of the heart and there is considerable throbbing of the blood vessels of the neck, chiefly marked on the left side. Pressure on the jugular near the larynx causes the left eye to protrude. The eyes are rather sunken, especially the left. The left fossa is rather obstructed by full turbinals, and the mucous membrane on that side is abnormally hyperemic. This is most unusual, as active congestion of the superficial blood vessels is seldom seen limited to one side. The mouth, throat and rhinopharynx are practically normal. The transillumination test shows both antra perfectly clear and a faint glow is seen through the pupils. When, however, the effort is made to protrude the eyeball, as by pressure on the neck, or holding the breath, the light entirely disappears from the upper part of the face, this being more slowly apparent on the right side. The condition, whether of a varicose nature or not, seems to affect both or-

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bits and the upper part of the nose, though it is much more pronounced in the left eye. I believe the enlarged condition of his neck exerts a marked influence on the return circulation from the head, bringing the veins directly under his muscular control."

The case which has just been described is an instance of that rare condition known as intermittent exophthalmus, the chief characteristic of which is an abnormal mobility of the eye in an antero-posterior direction, in consequence of changing volume in the contents of certain of the orbital veins. The name *"Exophthalmus a volonté"* has also been given to the condition, as subjects of this affection are able to change the position of the globe at will. Others designate it as "alternating enophthalmus and exophthalmus," as descriptive of the condition which exists in some cases. Of these three names, the one chosen as the title of this paper is to be preferred, for voluntary exophthalmus is a misnomer in those cases where the globe proptoses involuntarily, while the title can not be applied to all cases, since enophthalmus is not always found.

That the affection is a rare one is attested by the fact that I was able to collect but 39 other cases in all ophthalmic literature. It is probable, however, by reason of the greater number of cases reported in recent years, that the disease is not so rare after all, and that the infrequency with which one encounters reports of cases of intermittent exophthalmus in the literature is attributable to ignorance of its peculiar characteristics and to its being classed among the ordinary angioma of the orbit. Popular text-books in the English language make no mention of it, indeed, a rather careful search through German and French textbooks as well discovered references to the affection in but two of these. All the monographs have been written by German or French observers. Although cases which were undoubtedly instances of intermittent exophthalmus had appeared in the literature much earlier, Dupont was the first to give a satisfactory description of the affection, in a monograph which appeared in 1865. This author referred to four cases which had already appeared in the literature, and gave a full description of the symptomatology, course, diagnosis and etiology of the affection. The next article of importance was that of Sattlers[1] in 1880, and a year later Yvest[2] referred to the four cases already reported by Dupont[3] and added three others. In 1893, Sergent[4] collected most of the cases which had been already reported, wrote of their symptomatology in a comprehensive manner, and divided the cases into three groups. The next contribution of importance was in 1894, and appeared in Panas'[5] text-book. A year later, 1895, Van Duyse[6] reported a case and dwelt at length on the symptomatology of the affection. In the same year, April, 1895, Becker[7] published the most complete article which had appeared up to that time, citing nineteen cases from the literature, and reported two additional cases of his own. Two years later, 1897, Vossius gave another masterful exposition, but, being ignorant of Becker's article, repeated much of the contents of that author's paper. Vossius rejected the earlier cases referred to by Dupont and Sattler and included by Becker in his list, either on the ground of insufficient data or as manifestly of a different nature from typical cases of intermittent exophthalmus. In 1898 Scheffels[8] reported another case and rearranged the cases into groups differing somewhat from the previous authors.

In addition to these more or less elaborate monographs, reports of individual cases have appeared from time to time, without particular comment by their authors on the pathogenesis or symptomatology of the affection. But two cases, in addition to the one which I report, have been described by American authors, one by R. Sattler[9] and one by Grüning,[10] and only three by Englishmen, i. e., Collins,[11] Lang[12] and Bickerton, the remaining thirty-five having been seen in Europe.

The last article on the subject was by Hitschmann,[13] in July, 1900, and in conjunction with one by the same author which appeared six months earlier, is the most exhaustive treatise on intermittent exophthalmus which has yet appeared.

SYMPTOMOLOGY.

As already noted in the case which has been reported by me, and which may be regarded as a typical instance of intermittent exophthalmus, the characteristic symptoms of this affection consist in a more or less rapid, steadily forward movement of one eye when the body assumes a position which places the head in a dependent position, or when the flow of blood from the head to the trunk is impeded to any extent, either by voluntary act of the subject, as holding of the breath, or by pressure on the jugulars, coughing, sneezing, binding the neck with tight collars, etc.

The proptosis is either directly forwards or the globe may deviate to some extent from the anteroposterior axis of the orbit. The exophthalmus attains its maximum as a rule in about five seconds, and the eyeball rapidly recedes as soon as the conditions favoring it have been removed. Actual measurements show that the globe is driven forwards from 10 to 15 mm.; in one case the degree of the proptosis was so great that the globe was actually dislocated in front of the lids (Lacompte).[14] As in the case I reported, ptosis may appear when the exophthalmus is beginning to be marked, and may attain a degree sufficient to cover the upper part of the cornea.

1. Sattler, H.: Pulsierender Exophthalmus, Gräfe-Saemisch Handbuch der Augenheilkunde, vol. vi, p. 879. (Varikose Venengeschwülste in der Orbita.)

2. Yvert: Des tumeurs de l'orbite en communication directe avec la circulation intracranielle. Recueil d'Ophthal., 1881, pp. 1-93; ref., Michell's Jahresbericht, 1881, p. 453.

3. Dupont: Des tumeurs de l'orbite formées par du sang en communication avec la circulation veineuse intracranienne, Thèse de Paris, 1865.

4. Sergent, E.: De l'exophthalmus intermittent ou exophthalmie a volonté, Gazette des Hôpitaux, 1893, No. 60.

5. Panas: Traité des maladies des yeux, vol. ii. p. 401.

6. Van Duyse, Daniel, et Bribosia, Edmond: Enophthalmos avec exophthalmie intermittente à volonté. Arch. d'Ophthal. V. Panas, etc., vol. xv, pp. 159-170, 1895.

7. Becker, H.: Ein Beitrag zur Kenntnis der Schleimcysten und Gefässgeschwülste der Orbita, Arch f. Ophth., vol. xli, No. 1, p. 119.

8. Scheffels, O.: Ueber intermittierenden Exoph. und Enoph., Deutsche med. Wochen., 1898, No. 22, p. 347.

9. Sauter, R.: A Case of One-sided Transitory Exophthalmus with Undisturbed Function and Muscular Movements of the Eye and the Co-existence of Enophthalmus or Recession of the Globe. Amer. Jour. of Med. Sciences, vol. lxxxix, 1885, p. 486.

10. Grüning: Exophthalmus dexter bei vorwärts-bewegung des Körpers, Arch. f. Augen- und Ohrenheilkunde, V. Knapps-Moos, vol. iii, p. 168.

11. Collins, H. Treacher: A Case of Enophthalmus Becoming Exophthalmus on Stooping, Trans. Ophth. Soc., vol. xv, 1895: ref., Revue Générale, 1896, p. 379.

12. Lang and Thompson: Proptosis Occurring on Stooping or Compressing the Jugular Vein, Oph. Soc. of the United Kingdom, 1897; Ophthal. Review, 1897, p. 161.

13. Hitschmann, R.: 1. Demonstration Eines Falles von Exophthalmus intermittens und Ausgebreiteten Phlebektasien in Bereiche der Venae Jugulare, K. K. Gesellschaft der Aerzte in Wien., Sitzung vom 12 Jan., 1900; Wien. klin. Wochen., 1900, No. 3, u. Ophth. Klin., 1900, No. 5; 2 Centraibl. f. d. Grenzgebiete der Medizin und Chirurg., vol. iii, No. 13.

14. Lacompte: Exophthal. a volonté. La Belgique Méd., 1897, 28 Oktober; Revue Générale d'Ophth., 1898, No. 2; Nagel's Jahresberichte, 1897.

As was well shown in the case which has just been described, even when the exophthalmus had attained its greatest degree, there was little or no alteration visible either in the exterior or in the interior of the eyeball itself; the lids, however, became distended and a bluish tinge was imparted to them and to the skin surrounding the orbit. If there are any varicosities of the veins of the skin and conjunctiva, they become filled at the same time with the proptosis of the globe. Sometimes a venous tumor can be seen and felt, either behind or alongside of the globe; in most of the cases, however, no such tumor can be demonstrated. Bruit and pulsation over the eye are absent. The proptosis is usually unaccompanied by pain and in many cases the subjects themselves are unaware of the protrusion of the eye until their attention has been called to the fact by

Figure 1.

another. Usually, however, there is an unpleasant sensation of pressure and fullness in the orbit when the head is bowed forward, as though the eye were starting out of its socket. In some of the cases, especially those in which the exophthalmus is of extreme degree or persists unusually long, there is quite severe pain and tenderness in the orbital region, which may be accompanied by vertigo.

When the head is held in the upright position and the conditions which favor exophthalmus are absent, the eye presents either a normal appearance or one of slight enophthalmus, so that it resembles an artificial eye. In some cases there is slight proptosis and the tarso-orbital fold is deeper. The size of the pupil is usually unaltered, though in several of the cases it was noted as being dilated and in others contracted. Vision may not be affected, even at the height of the exophthalmus; generally, however, it is lowered when the proptosis is extreme, but becomes normal with the return of the eyeball to its normal position in the orbit. In a few cases vision may be much affected permanently, or even absolutely lost; in all such there are complications of various kinds, such as retinal hemorrhages which occasion disease of the optic nerve. Vision may be disturbed by derangement of the balance of the extraocular muscles, and diplopia has been recorded in several instances.

In many of the cases no change could be noted in the fundus, either during the exophthalmus or in the interim; in others, on the other hand, there was a dilatation and tortuosity of the retinal veins, the retinal vessels became empty and much reduced in size and the head of the nerve veiled, the normal appearance quickly returning to the fundus, however, as soon as the globe regained its normal position. Phlebectasia of the retinal vessels and of the conjunctiva was observed in a case by Hitschmann, and retinal hemorrhages have been noted by several observers. The tension is normal. Pressure on the eye, however, causes it to sink back deep into the orbit, and this occurs whether the eye is in its natural state or in that of exophthalmus.

Several cases have been reported where there was pulsation of the eyeball itself, synchronous with the beat of the heart. In other cases retrobulbar hemorrhages came on suddenly with marked constitutional symptoms, such as nausea, vomiting, dizziness, and at times coma. The exophthalmus in these cases was attended by great pain; movements of the globe were restricted; the eyeball did not recede when the patient stood upright, and ecchymosis appeared in the lower lid, after a few days, and the globe went back into its normal position, either with normal or restricted vision. Such hemorrhages are ascribed to sudden changes in the circulation in the venous system, and to a certain thinning and weakening of the orbital veins and their branches. Neustätter[15] recorded a case in which the exophthalmus, which had been intermittent, became permanent, due to thrombosis of the dilated orbital veins from typhoid fever.

The exophthalmus is limited to one eye, and in the cases reported in the literature, each eye was affected about an equal number of times.

As already mentioned, at the time of the protrusion of the eyeball, in a number of cases, a tumor appears in the orbit, which attains its maximum size when the proptosis is at its height and disappears with the exophthalmus when the conditions which occasion the protrusion of the eye are removed. This tumor varies in size from a pea to a large bean and may occupy any portion of the orbit.

In addition to this class of cases, there is also another, where a tumor appears in some part of the orbit or lids under the conditions which favor an intermittent exophthalmus and disappears when these conditions are removed. Some of the authors have grouped all three types of cases, i. e., those with exophthalmus without a visible tumor, those with exophthalmus and an associated tumor of the orbit, and finally vascular tumors of the orbit without exophthalmus, under the one heading of intermittent exophthalmus; while others have arranged the cases according to the site of the various veins in the orbit.

As the genesis of the three classes of cases is the same, and as the presence or absence of exophthalmus or orbital tumor is accidental in any given case, depending

15. Neustätter, O.: Disskuss zu Vosius am. 26. Nieden, A.: Zwei seltene Fälle von orbitaler Krankungen, Zehender's klin. Monatsbl. f. Augenheilkunde, vol. xix, p. 72 75.

on the position of the dilated veins in the orbit, it is impossible to disassociate these groups in describing the disease, though for purposes of classification and description it may be well to do so. Scheffel's classification is as follows:

1. Cases in which the varix is posterior to the globe and there is a simple exophthalmus, either directly forward or with slight lateral deviations.
2. Cases in which the varix is more anterior and may become visible and palpable alongside the eyeball, which has also been proptosed.
3. Cases in which the varix is still more anterior, and where no exophthalmus manifests itself, only the varix appearing.

PATHOLOGY.

As no autopsy has been made on a case of intermittent exophthalmus, it is impossible to assert definitely the pathologic lesion which occasions it, but the clinical symptoms are so striking and so manifestly due to a change in the volume of the veins of the orbit that almost all writers on the subject assign this as the cause of the disease. The structure of the superior ophthalmic vein favors the formation of a varix, for it is without valves and contains a great many constrictions in its course and especially where it empties into the cavernous sinus.

In addition to this, there are certain local conditions which favor a stoppage of the circulation of the blood in the orbit; these have been summarized by Sergent[4] as follows:

1. Anomalies in the bony configuration of the orbit (narrowness of the supraorbital fissure at the point of passage of the veins).
2. Anomalies in the muscles, ligaments and fat bolster of the orbit.
3. Anomalies in the resisting power of the vein walls.

Finally, most authors agree with Sattler that there is an individual predisposition to venous dilatation in many of the cases, as is further evidenced by the varicosities which appear on the face and in other parts of the body in many of them. It has been asserted by a number that a dilatation of the veins alone could not explain the conditions, and they believe that there is in addition a relaxation of the fascia, which holds the globe in the anterior position of the orbit. Van Duyse,[6] Bribos and Terson[16] explain the condition as a trophoneurosis of the orbit as a result of an affection of the sympathetic of the head, and Trombetter,[17] who called particular attention to the facial asymmetry, considers the affection as a commencing and a typical form of hemiatrophia facialis progressiva. Vieussen[18] explained his case by a congenital connection between the arachnoid space and Tenon's capsule, through the medium of the supraorbital fissure. While, as has been stated, in the absence of autopsy it is impossible to do more than hypothesize concerning the origin of the affection, from the clinical manifestations it seems proper to assign the varicosities of the orbit as the primary change and regard the absorption of the fat of the orbit and the looseness of the fascia which occasions, as secondary.

16. Terson, A.: Maladies des Yeux, Tome V des Traité de Chirurg. clin. et opérat, dirgé par Messrs. le Deuter et Delbet.

17. Trombetta, E.: Stato enoftalmico associato ad esoftalmo intermittente, Giornale d. R. Accad. med. di Torino, 1897, vol. xv, p. 537.

18. Vieussen: Communication entre le carté arachnoidienne et la capsule de Tenon. Recuiel d'Ophthalmol., 1878, p. 314; ref. in Hirschberg's Centralbl. f. Augenheilkunde, 1878, p. 312, und in Nagel's Jahresbericht, 1879, p. 437.

ETIOLOGY AND PATHOGENESIS.

Intermittent exophthalmus may be congenital, or it may develop in childhood; in the great majority of cases, however, it manifests itself at an age when violent physical force is expended and an impediment offered to the ready escape of the blood from the head, with consequent dilatation of the orbital veins. It is probably by reason of the greater physical strain to which men are subjected that the condition occurs more frequently among them than among women; thus, of the 40 cases recorded, about 65 per cent. occurred among men. When women are affected, the period of the appearance of the menses seems to have had a causal connection in a number of instances.

It is often possible to elicit the history of a fall or of a blow on the head, and many authors mention such

Figure 2.

incidents as etiologic factors, though the length of time which elapses in some of them before the exophthalmus appeared would render such a connection doubtful.

DIAGNOSIS.

The diagnosis is not difficult, there being no other affection where the exophthalmus appears and disappears so rapidly and under such conditions. Thus intermittent exophthalmus can readily be differentiated from true cavernous tumors of the orbit by the exophthalmus in the latter class of cases persisting when the head is in an upright position, by the occurrence of angiomatous tumors elsewhere in the orbit, by the presence of pulsations and of bruit, and by the slow appearance of the exophthalmus.

The diagnosis, however, from retrobulbar cavernous angioma is not always so readily made, and a number of cases in the literature which have been described as cases of intermittent exophthalmus really belong to this

group. Although the exophthalmus may in certain cases of intermittent exophthalmus become permanent (Grüning,[10] Dolgenkow,[19] Van Duyse[6] and Moyart,[20] Hitschmann[13] and Ostrowitski[21]), this is the rule in cavernous tumors; pulsation and bruit are also usually present. Finally, while compression of the jugular in cavernous tumors exerts some influence on the degree of the exophthalmus, it is but slight in comparison with that which follows interference with its circulation in the class of cases under discussion. Intermittent exophthalmus may be differentiated from hemorrhages of the orbit by the history, by the discoloration of the globe and lids, and by the rapid disappearance of the exophthalmus; from emphysema of the orbit after fracture, by crepitation and the relatively rapid healing; from exophthalmic goiter by the other cardinal symptoms of that disease, and by the permanent character of the exophthalmus.

PROGNOSIS.

The prognosis may be stated in general terms to be good, for though the tendency to protrusion of the eyeball may grow more and more marked with advancing years, as the result of a greater dilation of the veins and an increased laxity of the fascia, vision, as a rule, remains unimpaired, no inflammatory symptoms set in and the fellow eye is never affected. As monocular blindness may result from hemorrhage into the orbit or from pressure of the varicosities on the optic nerve, or from hemorrhage into the retina itself, the prognosis, however, should not be too favorable and the possibility of such serious complications should always be borne in mind.

TREATMENT.

The patient should avoid the conditions which cause the eye to proptose and all severe muscular strain should be prohibited; rest in the recumbent or sitting posture should be enjoined, and a bandage should be applied over the affected eye for several hours daily. Though Nélaton obtained a cure by injecting a few drops of the perchlorid of iron into the veins, this procedure can hardly be advised, on account of the danger to provoking thrombosis of the cavernous sinus. The radical healing by extirpation of the mass of veins, as proposed by Chelius, is not without danger, and electropuncture should be first essayed.

In cases uncomplicated by orbital hemorrhage or by visual disturbance, non-operative interference, in our present state of ignorance regarding the pathology of the affection, should be advised, but in cases where hemorrhage has occurred and where the loss of vision is threatened in the affected eye, then, perhaps, Hitschmann's counsel of laying bare and resecting the affected veins should be followed. Krönlein's operation being resorted to if necessary.

A LIST OF ALL TRUE CASES OF INTERMITTENT EXOPHTHALMUS IN THE LITERATURE.

All the authors of whom mention was made in the earlier part of this paper referred to the cases in the literature, and compiled lists of all cases which had appeared up to the time of the publication of their articles, but owing to some difficulty in classification or to a failure to consult the entire literature of this comparatively unknown form of disease, none of the lists is complete. In his final paper Hitschmann gives the most complete list of all, and very properly does not include the cases of varicose veins of the lids or conjunctiva which appear without exophthalmus on stooping, etc., which have been included by Becker[7] and Vossius in their lists. Of the cases cited by him, however, two should be excluded, namely, that of Axenfeld[22] and that of Vossius; that of the former, as it had already been reported by O. Meyers,[23] and that of the latter, as it, too, had already been described. Five additional cases should be added, namely, those reported by Bickerton, Leitner, Lesshoft, Mackenzie, P. Smith, as they are all true instances of intermittent exophthalmus. With these corrections, the list would comprise 39 cases in all, and with the addition of the one I record, 40. After a careful study of all the cases in the literature, I believe the following is a complete list of those who have reported cases of exophthalmus:

1. Becker.[7]
2. Bickerton.
3. Böhm.[24]
4. Collins.[11]
5. DeVincentiis.[25]
6. Dolgenkow.[19]
7. Dunkel.[26]
8. Elschnig.[27]
9. Gersner.[28]
10. Grüning.[10]
11. Hitschmann.[13]
12. Lacompte.[14]
13. Lang.[12]
14. Leitner.
15. Lesshaft.[29]
16. Magnus.[30]
17. L. Mayer.[31]
18. Mackenzie.
19. O. Meyer.[23]
20. Mulder.
21. Neustatter.[15]
22. Ostrowitski.[2]
23. Panas.[5]
24. Posey.
25. Radzwitzky.[32]
26. P. V. Richter.[33]
27. R. Sattler.[9]
28. Scheffel.[8]
29. Schmidt.[34]
30. Schwarzschild.[35]
31. Sergent.[4]
32. Siebold.[36]
33. Terson.[16]
34. Trombetta.[17]
35. Van Duyse and Bribosia.[6]
36. Van Duyse and Moyart.[20]
37. Van Zanten.
38. Vleusse,[18] and
39. Vossius.

To these 40 typical cases should be added 11 cases of venous tumors of the orbit, which behaved like intermittent exophthalmus, but where there was no exophthalmus.[37] These were reported by:

Andræ.[38]	Denig
Foucher and Nélaton.[39]	Graefe.[43]
Magel and Bonfon.[40]	Parrish.
Richet.	Velpeau.
Chisolm.[41]	Morgagni.[43]
Becker.[7]	

19. Dolgenkow, W.: Tumor cavernosus orbital sin, Weshuk Ophth., 1886; ref., Michel's Jabresbericht, 1886, p. 473.
20. Moyart and Van Duyse: Zehender's klin. Monats., 1897, p. 168.
21. Ostrowitski, H.: Ueber den intermittierenden exophthal, Inaug. Dissert., Griefswald, 1900.
22. Axenfeld: Diskussion zu Vosius' Vortag über Exophthalmus intermittens auf dem. Ophth. Kongress in Heidelberg, 1897.
23. Meyer, O.: Intermittierenden Exoph. mit, Erbildung und teilweisser Lähmung der äusseren Augemnuskeln klin. Monatsbl. f. Augenh., 1898, vol. xxxvi, p. 435.
24. Böhm: Ein Fall von Spontanem Exophthalmus während der Geburt, Ophthal. Klinik, 1899, p. 3.
25. De Vincentiis, C.: Sull esoftalmo da neoplasio dell' orbitada ematoma orbitario-pulsante spontaneo e traumatico, etc., Lavori della clinica ocul. della R. Univ. di Napoli, vol. iv, No. 1, 1894; ref., Michel's Jahresbericht f. Ophthalmol., 1894, p. 522.
26. Dunkel: Ueber exophthal. infolge varicöse Erweiterung der orbitalvenen, Inaug. Diss., Eschweiler, 1891.
27. Elschnig, A.: Allgemeine Wiener med. Zeitung, vol. xxxvii, 1892, p. 61; ref., Hirschberg's Centrabl. f. Augenheilkunde, 1892, p. 558.
28. Gessner, C.: Enophthalmos dexter übergehend in exophthalmus bei vorwärts beungen des Kopfes, Hirschberg's Centralbl. f. Augenheilkunde, 1889, p. 161.
29. Lesshaft, A.: Periodischen Exophthal. des rechten Auges bei beugung des Kopfes, Centralbl. f. prak., Augenheilkunde, 1898, p. 264.
30. Magnus, H.: Periodischer Exophthalmus sinister bei beugen des Kopfes. Zehend. klin. Monatsbl. f. Augenheilkunde, 1889, p. 62.
31. Mayer, Ludwig: Ein Fall von Exophthalmus intermittens, Inaug. Diss., München, 1896.
32. Radzwitzki, P.: Ein Fall von Enoph. mit intermittierenden exophth. Sitzungsbericht des Mosk. Ophth. Vereines Westruk Ophth., xiv, 3, p. 294; ref. in Nagel's Jahres., über die Leistungen der Ophthal., 1898, vol. xxviii.
33. Richter, P. V.: Ueber intermittierenden Exophthalmus, Arch. f. Augenheilkunde von Knapp Schweigger, vol. xxxi, pp. 31-44, 1895.
34. Schmidt: Ein mit dem Akte anhalterenden Inspiration zusammentreqender exophth. von Angeborenen varix der Hirnaugenvene, Ophthal. Bibliothek, 1805, vol. iii, p. 173.
35. Schwarzchild, H.: A Case of Palimptosis Alternating with Proptosis Following Injury, Med. Record, vol. xii, p. 544; ref. in Panas' Traité des Maladies des Yeux, vol. ii, Art. Enophthalmie.
36. V. Siebold-Chiron: Eine der theoretischen, praktischen, lit-

DISCUSSION

ON PAPERS OF DRS. HANSELL AND POSEY.

DR. C. R. HOLMES, Cincinnati, stated that Mr. Horner, aged 35, in 1892 was treated by him for a chronic catarrhal conjunctivitis. One day Mr. Horner volunteered to give a demonstration, which Dr. Holmes afterwards had him repeat a number of times. Patient stated that this condition had existed for many years and came without any known cause. The eye is rapidly protruded when he holds his breath, stoops forward, or attempts to lift any object from the floor; the ocular conjunctiva becomes congested and the veins of the lids prominent. There is no bruit nor pulsation present, nor could any varix be detected at any point around the globe. Maximum protrusion was about 10 mm. On resuming the erect posture and relaxing the muscles the eye rapidly receded, and there was then, as in nearly all these cases, enophthalmos. The patient stated that he had never suffered any pain, but that when the eye was protruding he experienced a feeling of pressure about the orbit. Ophthalmic examination was negative. Vision equaled 20/20. Dr. Holmes said that the majority of these cases have developed without any known cause, without pain, or any untoward symptom. Some developed in the act of performing labor not at all different from that which they had undertaken hundreds and perhaps thousands of times before and under exactly the same conditions. In Dr. Gruening's case, a man of 45, it came on suddenly, while he was laying a carpet, with a sensation of weight and falling of the eye. On returning to the erect posture the eye returned to normal. In Dr. Elsching's case, a soldier, aged 23, sudden proptosis occurred, with severe pain in the right eye while cleaning his horse. The eye receded on assuming the erect posture. In Dr. Van Santen's case, a woman, 30 years of age, sudden and enormous exophthalmos occurred with hemorrhage into the orbit. The patient had, however, noticed for a year and a half a slight prominence upon stooping. Dr. Holmes stated that the amount of protrusion varies from a very slight prominence to almost complete dislocation of the globe. In Dr. Robert Sattler's case and in Lacompt's case, actual dislocation of the globe took place. That the disease is rare is manifest, as only 40 cases have been reported. Dr. Holmes considers that it is due to a weakening of the coats, and resulting dilatation of the veins, and perhaps of the lymphatics of the orbit, and in the majority of cases causes no serious circulatory disturbances of the globe. It may also be due to a local anatomic defect in the veins and possibly in the muscles, fascia and ligaments of the orbit. Dr. Holmes considers Hugo Sattler's view that there is a predisposition to a general venous dilatation as doubtful, and agrees with Dr. Posey that there must be congenital predisposition of the orbital veins on the affected side favored by the size of the supra-orbital fissure, variations in the valves of the veins and the over or under development of the fascia, muscles, etc. Dr. Holmes considers that it may be readily understood how in some of these cases there is sudden violent attacks of pain with partial immobility of the eye, and at times very severe cerebral symptoms, followed later by hemorrhage and discoloration of the lids—all of which tells very plainly that there is a rupture of the veins with resulting hemorrhage into the orbit, which may or may not lead to choked disc with temporary interference with vision, or permanent atrophy, as in Dr. Meyer's case. The enophthalmos is explained by the atrophy of the orbital contents from pressure.

DR. J. L. BORSCH, Philadelphia, mentioned a case of this kind. The patient, a young woman, consulted him for an exophthalmos, which she said resulted from a severe muscular effort. She had been trying to lift a bureau in her room and immediately experienced a sensation of fullness in her left eye. On looking in the mirror she observed that the eye protruded more than its fellow. At the end of the day the eye assumed its normal position, but would immediately protrude on muscular effort. Dr. Borsch found a venous pulsation in the affected eye—otherwise it was normal; there was no bruit, and vision was normal in both eyes. The patient was quite nervous. Dr. Borsch prescribed tincture of gelsemium and advised prolonged rest in the country. After eight months the condition entirely disappeared.

DR. G. E. SEAMAN, Milwaukee, Wis., stated that he has come in contact with four cases of pulsating exophthalmos from injury, fractures of the skull. All four were operated on by ligation of the common carotid, and in three a good result was obtained. In the fourth case, which he saw only incidentally, there was an enormous exophthalmos, the symptoms were very pressing and the eye was removed and the orbit packed, but the hemorrhage immediately following was so severe that an immediate operation, ligation of the common carotid, was done. Almost immediately following this there was a complete hemiplegia of the opposite side, which has persisted to this day, although the operation was several years ago.

DR. W. H. WILDER, Chicago, referred to three cases of pulsating exophthalmos. One of these was particularly interesting, because the only cause that could be assigned for it was syphilis—fifteen years previously; the pulsating exophthalmos came on suddenly without any traumatism. It was suspected that there was an arteriovenous aneurism as a result of

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erarischen und historischen, Bearbeitung der Chirurgie gewidmete Zeitschrift, vol. iii, Stück 2, Sulzbach, 1814, p. 373.

37. Taken with the other footnotes, the following references make a bibliography that is believed to be complete: Albert, E.: Lehrbuch der Chirurgie u. Operationslehre, 4 Aufl., vol. iii, p. 599, vol. i, p. 125. Artt, F.: Die Krankheiten des Auges, vol. iii, p. 178, Prag., 1856. Gayet: Un cas d'exophtalmic intermittente societe de Chirurgie de Lyon, 1898, 2 June; ref. in ophthal. Klinik, 1899, No. 6, p. 94. Grüss: Wiener med. Presse, 1887, No. 25, p. 884. Himly, E. A. W.: Die Krankheiten und Missbildungen des menschlichen Auges und deren Heilung, vol. i, p. 393, Berlin, 1843. Joequs, R.: Contribution au diagnostic des tumeurs vasculaires de l'orbite, Clinique Ophtalmologique, May, 1895. Idem: Sur un nouveau cas de dilatation veineuse de l'orbite, Clinique Ophtalmologique, August, 1895. Knapp, J. H.: Klin. Monatsbl. f. Augenheilkunde, 1863, p. 163. Koryker, H. A., u. Molder, M. E.: Ein Fall von intermittierendum exophthalmus mit palsationen des Auges, Leitschrift f. Klin. Medecin, 1899, vol. —, p. 335. Le Moine: Observation de tumeur varigueuse; naevus de la paupiére superieure; cauterization ignee, Recueil d' Ophthalmol., 1887, p. 416; Revue Générale d'ophthalmol., 1887, p. 475, und Michel's Jahresbericht, 1887, p. 433. Cohn, H.: Messungen der Prominenz der Augen Mittelst eines neuen Instrumentes, des exophthalmometers Zehenders klin. Monatsblätt. f. Augenheilkunde, vol. 7, pp. 393, 394. Dictionnaire de Médecin ou Repertoire générale des sciences medicales, Deuxieme edition, vol. xxx, Paris, 1840; Article Maladies de l'orbite, velpeau, vol. xxii, p. 310. Donders, F. C.: Ueber die Stützung der Augen bei Blutandrang durch Atmungsdruck, Gräfe's Arch. f. ophthalmol., vol. xvii, No. 1, pp. 80, 106. Festal: Recherches anatomiques sur les veines de l'orbite, Thése de Paris, 1887. Fischer, J. N.: Lehrbuch der gesammten entzündungen und organischen, Krankheiten des menschlichen Auges., etc., Prag., 1846, p. 361. Ferrari, P.: Ueber die experimentelle verstopfung des sinus Durae Matris, Wiener med. Jahrbücher, 1888, p. 81. Grunert, K.: Ein Fall pulsierendem Enophthal Opthal, Klinik, 1898, No. 15, p. 272, Natchtrag. dazu, No. 23, p. 437. Merkel, Fr.: Handbuch der topographischen Anatomie, vol. i, Braunschweig, 1885-1890. Medicus, Frederick Casimir: Geschichte Periode haltenden, Krankheiten, 1894, pp. 73-82; Frankfurt u. Leipzig bei G. L. Macklot. McKay, R. J.: Nonpulsating Exophthalmus with Recurring Thrombosis of Orbital Veins, Trans. of the Am. Soc., eighteenth annual meeting, 1882, p. 351. Rosas, A.: Handbuch der thearetischen und prak., Augenh., p. 423, Wien, 1830. Schon, M. J. A.: Handbuch der Pathologischen Anatomie des menschl., Auges., Hamburg, 1828. Stellwag, V. Carion: Die Ophthalmologie von naturwissenschaftlichen Standpunke, vol. ii, No. 2, p. 1275. Seggel: Erwähnt in Richter's Aufsatz. Tellias: De l'exophthalmie transitoire ou intermittente, Wecker de Traité complet d'ophthal., vol. iv, article xiii. von Kempf, J.: Periodischen Vorfall des Bulbus Allgem., Wien., med. Zeitung, 1864, vol. ix, p. 131. Weiss, L.: Beiträge zur Anatomie der Orbita, No. 1, Tübingeff, 1888. Terson, Jean: De l'enopthalmie et de l'exophthalmic alternantes, Paris, 1897. Van Zantan: Spontane Hämorrhagie in die orbita Nederl. Tydschr. V. Geneesk afd. 1, No. 3; ref., Nagel's Jahresbericht, 1872, p. 427.

38. Andrea, A.: Grundriss der gesamten Augenheilkunde, No. 11, p. 145, Magdeburg, 1837.

39. Foucher: Sur une variété de tumeur l'orbite, Gazette des Hôpitaux, 1858, No. 141.

40. Mayel et A. Boniface d' Anduge: Tumeur veineuse réductible de la paupiére inférieure, Union Medic., 1861, p. 163; ref., d'Annales d'Oculistique, vol. xlv, p. 273.

41. Chisolm, J. J.: Eine variköse Geschwulst des untern Lides, unsichtbar bei aufrecht gehaltenem, sehr gross bei gesenktem Kopf, Arch. f. Augenheilkunde von Knapp-Schweigger, 1891, vol. xxii, pp. 261-264.

42. v. Gräfe: Vereinzeltes über Tumoren, Gräfe's Arch. f. Ophthalmol., vol. xii, No. 2, p. 222.

43. Morgagni, J. B.: De sedibus et causis morborum per anatomen indagatis libii quinque Venetii, 1761, T. I., vol. xiii, No. 6.

syphilitic degeneration of the walls of the internal carotid in the sinus. The patient refused operation and was kept under observation for one year, during which time large doses of iodids were given him which seemed to cause slight improvement. One of the other cases was treated by ligation of the right common carotid, but collateral circulation was established within three days and the proptosis and pain returned, so that it was necessary to ligate the left carotid. This resulted in a cure of the pulsating exophthalmos, but the sight of the eye was lost. In the great majority of these cases the pathology is that of arteriovenous aneurism in the cavernous sinus. In some cases, as in those of spontaneous origin, it is possible that the syphilitic endarteritis, allowing a dilatation of the artery, is the active cause.

DR. GEO. C. SAVAGE, Nashville, believes that some of these cases referred to are cases of angioneurotic edema, a condition that Dr. Osler has so well described. He has had three cases of this kind. The first was that of a young girl, whose left eye suddenly protruded far beyond its normal position; so far that the lids could not possibly close, nor could the eye be rotated. She remained in this condition for several days, and then came to town with the understanding that the eye was to be removed. Dr. Savage pronounced the case one of hemorrhage into the orbit behind the eye, and thought that the hemorrhage had caused the eye to protrude. He put her on absorbents and the eye returned to its normal position. She was blind in the eye from pressure, tension on the optic nerve due to the protrusion of the eyeball, but she recovered her vision as the globe resumed its normal position. About six months ago the same girl developed the condition again. Another case was one in which there had been repeated attacks on one side of the face. Later the condition developed on both sides. In this case the family physician sent for Dr. Savage, because the lids were the parts involved. He pronounced it a case of angioneurotic edema. About the third day he received a message that she was dead. The same condition as to effusion had occurred in the cranial cavity, possibly in the ventricles of the brain. She had a sudden pain in the head, became unconscious and died quickly. The other case was characterized by swelling of the upper lid, and occurred in a young man who had had repeated attacks. Dr. Savage believes these cases are angioneurotic edema, a condition that is not well understood.

DR. WALTER L. PYLE, Philadelphia, mentioned the case of a woman, aged 45, subject to attacks of angioneurotic edema, with aggravation of exophthalmos, who died of edema of the glottis.

DR. ROBERT L. RANDOLPH, Baltimore, stated that he had an opportunity in consultation recently to observe a case of this kind. The patient was a woman of 60. There was marked exophthalmos and a distinct bruit. The history extended over twenty years and dated from her last pregnancy, at which time she had puerperal convulsions. It was determined finally to make an incision over the lid and dissect it out as an ordinary orbital tumor. The operation was performed by Dr. John Finney and lasted about two hours. Early the next morning she had a convulsion, and an hour later five convulsions, and death ensued. Dr. Randolph said that she never came out from under the ether. The possibility of a termination like this in individuals whose blood vessels are old should be a warning in regard to prognosis. The successful cases are those which are operated on under 40. Dr. Randolph believes that this is the oldest patient with this condition to come to operation.

DR. WILLIAM C. POSEY said that his reason for omitting the case referred to by Dr. Holmes was because careful study of it convinced him that it was one of cavernous angioma, and it and several others of a similar character were dropped from the list. Dr. Posey does not believe that any of these cases were instances of angioneurotic edema, as was suggested by Dr. Savage.

Camphor in Shock.—The *Critic and Guide* states that from 15 to 30 minims of a 10 per cent. sterilized solution of camphor in olive oil injected hypodermically is of great benefit in shock.

AN ENCOURAGING CASE OF LOCOMOTOR ATAXIA.*

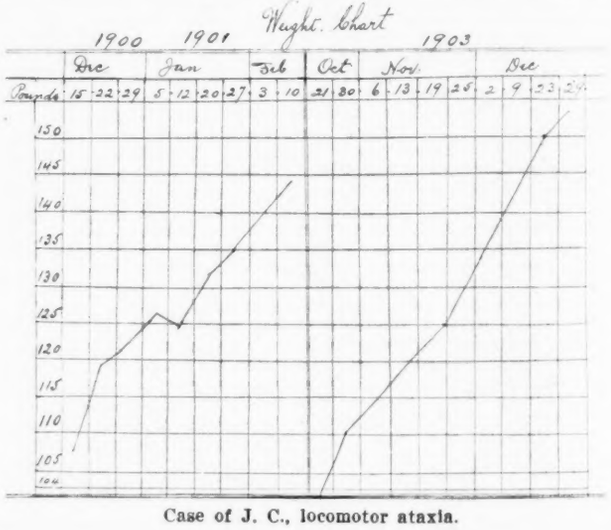
GUY HINSDALE, A.M., M.D.,
HOT SPRINGS, VA.

The case of locomotor ataxia which I report is worthy of record, not because of any extraordinary feature of the disease, but on account of the remarkable improvement in the patient in a short space of time.

Patient.—A man, J. C., aged 42, has been twice under my care. In 1899, when he first came under observation, he was engaged in the office of a large tanning establishment in Cincinnati.

History.—His mother died of nervous prostration, and his father of apoplexy; he had been married 18 years but had no children, and his wife had had no miscarriages. He had been well and strong until five years before he first came under observation. He used alcohol and tobacco in moderation, and had had gonorrhea but denied syphilis.

Examination.—The scalp was partly bald. The first symptom was attacks of abdominal pain, with vomiting and occasional diarrhea. These attacks kept him in bed for perhaps a day. They gradually became worse and more frequent. One year previously he began to lose sexual desire and power. Six months later he occasionally had difficulty in passing water, but micturition was not painful. He then began to have lancinating pains in the calves; the gastric crises became worse and "band sense" appeared above the level of the ensiform cartilage; he vomited for hours at a time, and



Case of J. C., locomotor ataxia.

had to be kept under the influence of opiates. He began to have difficulty in walking in the dark; his eyesight became poor; there was lachrymation and stinging sensation in the eyes, but no retinal changes. His pupils were contracted and reacted very sluggishly to light and accommodation. The knee jerks were absent and not re-enforceable. Romberg's symptom was present and gait was ataxic. Temperature sense was somewhat faulty, as cold was mistaken for heat on the legs and thighs. Sensation was normal on arms and chest. Sense of heat normal all over. There was incoördination of the movements of the arms. Blood count, from 2,800,000 to 3,740,000 red cells; leucocytes, 9,370.

Treatment.—The patient was put to bed and given the usual rest treatment, massage, electricity (sinusoidal), and educational movements. In eight weeks he rose in weight from 108 pounds to 144 pounds. His pains gradually left him, his gait improved, and he returned to his usual occupation in three months from beginning treatment. During this time his urine, which had contained albumin, hyaline and granular casts, became normal.

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* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

The medical treatment was chiefly nitrate of silver and extract of belladonna; five drops of the satura ed solution of potassium iodid was administered at various times, but was badly borne, and after two or three days' trial had to be given up. Extract of opium and antipyrin were used to relieve the pain.

Subsequent History.—After nearly three years of usefulness he returned to Philadelphia with similar symptoms and was put to bed as before under my care in the Presbyterian Hospital. The gastric crises were very distressing and he was reduced to 104 pounds. Under treatment he again improved, and at the end of nine weeks he had risen in weight from 104 to 150 pounds. The same inability to take iodids was noted and the same improvement under nitrate of silver and belladonna was observed in connection with the treatment. Mercuric chlorid, 1/20 gr. twice daily, was administered hypodermically for 5 weeks.

There were no febrile crises in this case. The object in citing so typical a case is to emphasize the great advantage in carrying out the rest treatment in these cases. They should be taken off their feet before they weary themselves by wandering around the streets unconscious of the ordinary sense of muscular fatigue. Massage and electricity supply all the needs of exercise. The faradic or the sinusoidal form of faradic electricity is probably the best for these cases. As they gain flesh and strength, graduated educational exercises should be employed and are very easily carried out. In this case faradism was applied by a rectal electrode for a few minutes daily to relieve the atony and anesthesia of the rectum and anus. This was a trying symptom and gas escaped when it was impossible for the patient to control it. It was not considered necessary in this case to use lavage. The vomiting ceased under the use of a pepsin preparation, with phenacetin and deodorized tincture of opium. How long an interval may be expected before the patient reverts to the unfortunate condition in which I found him, it is impossible to tell. A quiescent period of two or three years is, of course, a great gain, and I have ventured to cite his history to encourage others to confidently treat these cases along similar lines, even in the face of such frightful symptoms as this man presented.

Under date of May 27, 1904, this patient reports "improvement along all lines. I have had very little pain. The attacks are so far apart and so light in comparison with the old ones that I pay little attention to them. My walking I consider good. I do not think my defects would be noticeable to any one outside of the profession. I have grown much stronger and weigh 145 pounds. The rectal trouble is the most stubborn, still there is a big improvement."

The **Action of Poisoned Arrows.**—Frank Charteris, in the *Glasgow Medical Journal*, reports the results of examinations of two sets of poisoned arrows which were sent to Glasgow University with the request that the nature and action of the poison be determined. The arrows were collected in an expedition against the Aros; they were of two sizes, the smallest were dreaded for the poisonous action and the larger for the wounds which they inflicted. The poison from the smaller arrows, when injected, in solution, into frogs caused death within an hour. The ventricle was found to be firmly contracted in extreme systole, and was white in color, as if all the blood had been squeezed out. The poison was probably strophanthus, as this drug in various forms is extensively used in western Africa for poisoning weapons. The larger arrows were poisoned with a substance which acted similarly on frogs, though the active principle was different—probably pseudo-strophanthin or ouabaine.

Special Article.

IMMUNITY.

CHAPTER IV—CONCLUDED.

The belief that invisible "animalcules" were able to cause morbid processes in man is a very old one. A passage from Varro (116-27 B. C.) reads as follows: "There are swampy places in which grow animals never so small which may not be recognized by the naked eye, and through the air gain access to the body and bring about severe diseases."

Micro-organisms.

The discovery and use of the compound microscope in the seventeenth century disclosed the reality of the minute living forms which had been so often suspected. Kircher, with his first crude microscope (1646), examined the tissues of various diseases, and was the prolific author of many theories as to their etiology. It is now believed that the magnification of Kircher's microscope was so small that many of the "worms" which he saw were really larger fungus cells and in some instances the as yet undiscovered blood and pus cells.

The Microscope.

Leeuwenhoek, with his compound microscope, magnifying 1,000 diameters, described accurately many microscopic forms, but made no application of his discoveries to medical problems. Such application was by no means wanting, however, and the succeeding century and a half saw such voluminous descriptions of microbes, so many contradictory theories and statements, that the "infinitesimally small" fell into disfavor in many quarters as the cause of diseases. The attractions and reasonableness of the theory, however, were such that it continued to gain exponents, and in the early part of the nineteenth century reached a degree of definiteness. In 1855, the great French physician, Brétonneau, affirmed that a specific germ was the cause of every contagious disease. "An epidemic disease can originate and extend only through the agency of the germ producing it." Yet at this time no infection had been proved to be of microbic origin.

In 1850 Rayer and Devaine made an observation, which probably would have fallen into the oblivion of many preceding ones had it not been confirmed by later observations of importance. They found "small filiform bodies" in the blood of sheep which had died of anthrax, and were naturally inclined to believe that these forms caused the disease. Other students, especially Pasteur and Koch, soon took up the study of this disease with the result that the small rods of Devaine were scientifically proved to be its cause.

Anthrax.

Two great minds dominated medical research at this time—Pasteur and Koch. Pasteur, in his early career as a chemist, had had his attention called to the processes of fermentation. He recurred to this subject at a time when the theory of the spontaneous generation of small living forms was widely discussed, and in 1857-1861 proved beyond any possibility of doubt that lactic acid, alcoholic and butyric acid fermentations were due to the action of minute living cells; and, furthermore, that each particular kind of fermentation had its own peculiar microbe as the cause. This was an example of what we term to-day microbic specificity. Pasteur then applied what he had learned about fermentations to the study of the diseases of wines and beers. He found their causes, and devised a preventive measure, which consisted merely in the application of the proper degree of heat to the wine before it was stored. At the instance of the French government, he then studied certain diseases of silkworms. His success in discovering their causes and prevention must always remain for us one of the landmarks of the world's progress. It was at this time that he took up the study of anthrax. The specific microbe having been dis-

Fermentations.

Microbic Specificity.

covered, and the methods of transmission of the malady made clear, he turned his attention to methods of prevention and, if possible, of cure.

Pasteur pondered the question of smallpox vaccination. He came to believe that varioloid was smallpox, the virus of which had been attenuated by its passage through the cow, and that consequently when man was vaccinated he was inoculated with a benign form of the disease. Might not this be an example of a law which would be general in its application? The protective inoculation (active immunization) against the pleuropneumonia of cattle which had long been practiced gave encouragement to this hope. Some work by Toussaint was important in the answer to this question. It was evident that a weakening or attenuation of the bacteria or virus must first be obtained before it could be safely injected into animals for the purpose of producing immunity. Accordingly, Toussaint heated virulent anthrax blood to a temperature of 55 degrees C. for ten minutes and injected the product into a number of sheep. Some animals died of anthrax, while others suffered only a mild attack from which they recovered; the latter were found to be immune to a subsequent inoculation with virulent blood. Inasmuch, however, as some of Toussaint's animals had died of anthrax, Pasteur concluded that there was some grave error in technic. He considered that Toussaint's method probably killed or attenuated the fully-developed bacilli, but did not injure the spores of the parasite (Koch had previously shown the existence of anthrax spores). After much experimentation, Pasteur hit on the plan of growing the bacillus at a temperature of 42 degrees C., obtaining in this way a culture of the fully developed organism which had a low virulence, but which did not form the dangerous spores. When sheep were inoculated with the proper amount of this culture, which became known as anthrax vaccine, they had a mild attack of the disease, which rendered them immune to virulent inoculations. With the possibility of protective inoculation with a known virus actually demonstrated, similar procedures were tried with other animal diseases of known bacterial etiology, with the result that successful vaccines against chicken cholera and swine plague were developed. Pasteur and his co-workers having failed to discover the microbes of plague and cholera, soon turned to the study of another disease which not only destroys many domestic animals, but is at the same time one of the most dreaded diseases which attack man, hydrophobia. All efforts to cultivate the virus from the spinal cord of rabid dogs, which surely is its seat in the affected animal, failed. The unique idea then occurred to consider the infected spinal cord as a fully developed culture of the virus. It remained to subject such a culture to the proper attenuating conditions to weaken or actually to destroy its virulence in order to make it fit for protective injections. This was accomplished by drying the cords in a closed vessel over a hygroscopic substance (solid potassium hydroxid), the final virulence of the cord depending on the length of time it had been subjected to the drying process. The technic of the protective injections, the success of which is household knowledge, will be the subject of later consideration.

Vaccination.

Anthrax.

Hydrophobia.

By no means of secondary importance, during this period, was the work of Koch on the specific bacteria of tuberculosis, cholera, typhoid and the pyogenic diseases; and not least his improved methods of obtaining pure cultures through the use of solid media (gelatin) on plates. Through his work and that of Pasteur two great principles had been set in motion: the microbic specificity of infectious diseases, and protective inoculation in its generalized form, through the use of attenuated virus.

Two Important Principles.

The scientific mind turned at once to the inquiry, What changes take place in an animal's body as the result of the protective inoculation, which render it immune to an infection to which it was formerly susceptible (acquired immunity)? And again, what properties of the tissues or body fluids render one type of animal immune to an infection while another species is subject to attacks of this disease (natural immunity)? Pasteur had observed that if he grew the microbe of chicken cholera in a liquid medium for some time, then removed the bacteria by filtration, the fluid became unfit for the further growth of the organism on subsequent reinoculation. That is, the nutrient material had been used up; and he suggested that this is the case in the animal body. Having undergone the infection, suitable nutrient material for the microbe is used up, and the patient recovers. The disappearance of the proper nutritious substances is assumed to be more or less permanent and consequently renders the animals immune to further attacks. This conception, the exhaustion theory, at one time shared by Koch and Klebs, is still represented in an altered form by Baumgarten, who speaks of an unfavorable culture medium as representing the condition of the immune body, which, of course, is broadly true.

Theories of the Cause of Immunity.

Exhaustion Theory.

Chauveau was the author of another historic theory of acquired immunity (the noxious retention theory), which was to the effect that during the course of a disease the bacteria produced substances in the presence of which they could not develop further; consequently recovery took place, and the continued presence of these noxious substances made another attack of the disease impossible. Although it is true that bacteria do not grow well in their own metabolic products, theories of immunity on this and similar bases are not in accord with the fact that immunity may be of great duration, and that it may be conferred by the injection of the killed bacteria, or, in some cases, of their non-living soluble products.

Noxious Retention Theory.

Metchnikoff may be credited with having first offered a plausible explanation of natural resistance, founded on observation. As a zoologist he had studied the subject of intracellular digestion in the lower animals, and it was while working on this problem that he observed the fate of a yeast fungus (*Monospora*), which caused epidemics among the daphnia, small, transparent animals with which he was working. In the alimentary tract, which was the infection atrium, some large mesoblastic cells, which are perhaps analogous to the white blood cells, were seen to ingest the parasites and dissolve them. If this took place to a sufficient extent the animals recovered; if, however, the infecting organisms were too numerous or the reaction on the part of the animal insufficient, the body became overwhelmed with parasites and death resulted. Since that time Metchnikoff has evolved his well-known theory of phagocytosis as the essential factor in both natural and acquired immunity, a theory which Pasteur, in his later years, looked on with favor. We may speak of this as the cellular theory of immunity; a theory which has had to undergo important modifications in order to bring it into accord with new facts.

Phagocytosis.

Considering that natural or acquired immunity must exist because of certain qualities of the body cells, or of the body fluids, or possibly of both, investigators began to make analyses of the tissues; and of all the analyses, that which we may term the biologic has been the most fruitful. In this case biologic analysis means the detection of reactions which may occur when bacteria or their products are placed in contact with tissue cells or fluids. The chief of these are the determination of the ability of the serum of an animal to kill bacteria or to neutralize bacterial toxins. These important investigations, still in their infancy, were inaugurated by the findings of Fodor, Nuttall, Nissen, v. Behring and Buchner, which

Investigations of the Properties of Serums.

Bactericidal Power.

showed that fresh defibrinated blood, and the blood serum of various animals, were able to kill bacteria in the reagent glass. In contrast to the action of ordinary antiseptics, this power is often selective, killing one variety of bacterium and leaving another unharmed. This is of enormous importance, as it would seem to identify the factor on which natural immunity depends. Then followed the discovery of Nissen and v. Behring (*Vibrio metchnikovi*) and of Bouchard (*B. pyocyaneus*), that if an animal is systematically injected, i. e., immunized, with a micro-organism, the power of its serum to kill the bacterium used in the immunization is greatly increased; from which it would seem that acquired immunity depends on the increase of powers which are normally present to a certain degree. These phenomena have to do with the antibacterial or bactericidal power of serum.

Toxins and Antitoxins.

It was a most important step when it was found that the tetanus bacillus (Brieger and Fränkel) and the diphtheria bacillus (Roux and Yersin) secrete each a powerful, specific, soluble toxin, which may be separated from the bacteria by filtration. Immunization with these bacterium-free toxins was undertaken (Behring and Kitasato) with the familiar result of the production of the specific antitoxins.

With these facts in hand, the vigor with which investigations have been pushed may be readily imagined. The hope naturally prevailed that physicians might become the masters of all infectious diseases, through the possession of specific antibacterial and antitoxic serums. But failures, with which we are only too familiar, met the attempts to produce adequate antitoxins for many diseases. Nevertheless, these failures have stimulated investigators to a closer study of various aspects of immunity and the methods by which bacteria cause disease. This has resulted in the acquiring of much knowledge concerning the properties of bacteria, toxins and the immune serums, out of which has grown a new theory of immunity, the "side-chain" theory of Ehrlich.

(*To be continued.*)

Clinical Report.

EXTENSIVE INJURY TO THE SKULL AND BRAIN, PATIENT LIVING NINE DAYS.

EVERETT MINGUS, M.D.
MARSHFIELD, ORE.

I am indebted to Walter Culin, M.D., Coquille, Ore., in whose practice it occurred, for the report of the following case.

I was called August 26 to see a man five miles in the country who had been struck on the head, while working in a logging camp, by an iron hook attached to a heavy chain, the whole weighing about 75 pounds. The accident was occasioned by the hook suddenly giving way while strong traction was being made on it in the direction of the injured person, by a steam engine.

Examination.—On reaching the patient I found an extensive laceration of the scalp covering the left frontal region and brain matter oozing from the wound. A considerable piece of the frontal bone was gone from over the eye. This piece of bone measured 1¼ by 1¾ inches and was lying on the ground some ten feet away from the place where the man was injured. There was also a compound depressed fracture over the anterior superior angle of the left parietal bone. The condition of the patient was that of impending death. Pulse 180, small and thready; Cheyne-Stokes respiration; cold extremities; subnormal temperature and clammy skin. There was injury to the teeth and tongue and escape of blood from the mouth and nose. The scalp wound over the eye extended downward across the inner canthus and involved the lower lid of the left eye. The eyeball was intact but cloudy, and there were signs of interocular hemorrhage. The right eye was unimpaired; the pupil was normal and responded to light. No paralysis of extremities. He passed urine voluntarily and controlled rectal evacuations. Hearing in both ears was normal. Patient was somewhat restless, but obeyed orders from attendants.

Treatment.—In view of the hourly expectation of his death, the extensive nature of his injury, and unfavorable surroundings, nothing was done to the wound with the exception of inserting a few provisional stitches and applying a light dressing.

Subsequent History.—Toward morning of the next day the patient's condition showed improvement, and by 2 p. m., 21 hours after receiving the injury, his pulse fell to 85; temperature, 98.5; respiration, 26, and regular. He responded "yes" and "no" to questions promptly. No vomiting. August 28: Pulse, 85, full and regular; temperature, 100; respiration, 26, and regular. Mental condition unchanged. Tongue swollen and protruding slightly between the teeth. No vomiting. No paralysis of face or of other groups of muscles. No twitching; sensation normal; reflexes intact. August 29: Pulse, 85, full and regular; respiration, 20 and regular; temperature, 100. The wound over the orbit was opened and a considerable mass of protruding brain substance in a necrotic condition was removed by gentle irrigation and sponging. During these manipulations a large blood clot plugging the superior longitudinal sinus became loose, which prohibited further work in that neighborhood. Irritation of the brain substance over the injured area did not elicit any response, while the same degree of irritation applied to the membranes or skin would cause him to wince his face and raise his hand for protection. He complained of headache. He took 12 ounces of liquid nourishment at one feeding. August 30: No change. He took nourishment freely and attempted to explain his feelings, but articulated with difficulty, which was apparently due to injury to his tongue. Edema about right eye and wound is disappearing. He recognizes his friends and calls them by name indistinctly. Says he feels very good with the exception of headache. August 31: No change from previous day. Scalp wounds uniting and swelling about left eye going down. September 1: Pulse, 85; temperature, 100; respiration, 20. He took a newspaper in his hand, read for a half-hour with apparent interest. September 2: Pulse, 120; temperature, 98; respiration, 20. No other change from previous day. September 3: Pulse, 140 and regular; temperature, 100; respiration, 26. September 4: Pulse, 144, irregular and dicrotic; temperature, 99; respiration, 30. Died at 2 p. m. without manifesting any cerebral symptoms.

Autopsy.—An irregular wound of the skin beginning on lower eyelid on left side, thence across inner canthus to the root of the nose, thence upward and outward over the frontal bone to a point corresponding to the beginning of the temporal ridge. A second wound on the left side four inches in length, just behind and parallel to the coronal suture.

Cranium: Two compound comminuted depressed fractures united by a linear fracture. The first and most serious involved the vertical portion of the frontal, orbital ridge, anterior three-fourths of the orbital roof, great wing of the sphenoid, nasal bones, horizontal plate and crista galli of the ethmoid; the second was situated just behind the coronal suture, of irregular outline and one inch square. From it extended a linear fracture into the first one and also one passing over the top of the skull into the right parietal bone for a distance of one and a half inches. The spiculæ of bone from this fracture were driven well into the brain substance.

Brain: Complete destruction of the left frontal lobe. The posterior line of injury passed through the precentral fissure downward and forward, skirting over the ascending and horizontal branches of the anterior limb of the Sylvian fissure. On the basal surface the destruction extended as far back as the middle of the olfactory bulb and on the mesial surface as far as the genu. The superior longitudinal sinus was torn across and thrombosed to a point opposite the coronal suture. The substance of the brain in the injured area was pulpified to such a degree that it could be removed by gentle sponging. The peculiar interest in this case is the survival of the initial shock and the complete absence of sensory, motor and psychical symptoms.

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BREWER'S YEAST FOR PYOGENIC INFECTIONS.

It is stated that the workers in some breweries in France have for many years made use of brewer's yeast in the treatment of acne, furunculosis and malignant pustules. The first mention of this remedy in medical literature is by Mosse, in 1852. Brocq claims that he used yeast on himself in the treatment of recurrent malignant pustules, and was entirely cured, although he had tried many other remedies without obtaining relief. He reports in detail one other case of malignant pustules, three cases of furunculosis and one case of acne, all of which it is alleged were cured with brewer's yeast. Lassar used it in the treatment of furunculosis complicating diabetes, and reports equally satisfactory results. Many other reports may be found in the recent literature, nearly all of which speak highly of this simple remedy. The best results are obtained with fresh brewer's yeast (*Saccharomyces cerevisiæ*), although baker's yeast has also been used. It is taken internally in doses of from a teaspoonful to a dessertspoonful dissolved in a glass of water. This may be drunk during or at the beginning of each meal, three times a day. It is important that the yeast should be fresh, because slight digestive disturbances, and occasionally diarrhea, are produced even by perfectly fresh yeast.

Recently yeast has been locally applied in the treatment of gonorrheal affections in women. It has been used in the form of balls which are introduced into the vagina and also in the form of suppositories which are introduced into the cervix. Some very satisfactory results have been reported from this treatment by Abraham[1] and others. Cronbach,[2] however, does not think that it has any great advantage over the older treatment with antiseptics.

The exact mode of action of this remedy is not clearly understood, although several attempts have been made to throw light on this question by test-tube and animal experiments. Sergent inoculated rabbits with staphylococcus aureus by rubbing the cultures into the shaved skin. This inoculation produced many small furuncles, which healed rapidly under the administration of yeast. The controls always required from four to five days longer for recovery. When large doses of staphylococcus were injected under the skin the rabbits invariably died from the infection. McNair Scott could not notice any difference in favor of the treated rabbits when observing a large number of animals that had been inoculated with staphylococcus. Turro, Tarruella and Presta[3] inoculated six rabbits under the skin of the ear with several drops of a virulent streptococcus. Four of these rabbits were treated with yeast by subcutaneous injections, and the other two got no treatment. All of the animals developed erysipelas of the ear, but those that were treated soon improved and were practically well on the seventh day, while both controls were still becoming worse. One of the controls showed signs of improvement on the tenth day, and made a slow recovery, but the other died of a generalized infection on the eleventh day. Somewhat similar results were obtained from inoculation with *Staphylococcus pyogenes aureus* and *albus*. These investigators, as well as Sergent, were able to produce a fair degree of immunity in rabbits to the pyogenic micrococci, by treating the animals with yeast for a number of days before the inoculation. This immunity, however, was soon lost after discontinuation of the treatment. The serum of animals thus treated acquired high agglutinative properties for streptococci and staphylococci, but was not bactericidal. Extract of yeast cells has not given as satisfactory results as the whole yeast. It would seem from these reports that the administration of yeast has a favorable influence over many mild forms of pyogenic infection, and as it is a very simple and harmless remedy its use can be safely recommended.

1. Centralbl. f. Gynäkologie, 1904, xxviii, p. 249. Abstracted in THE JOURNAL, April 2, 1904, p. 931.

2. Ibid., 1904, xxviii, p. 1356. Abstracted in THE JOURNAL, Dec. 31, 1904, p. 2054.

3. Centralbl. f. Bakt., 1903, vol. xxxiv, p. 22.

WATER DRINKING INDICATIONS AND CONTRAINDICATIONS.

It is well known that artificial, dry heat causes evaporation of moisture from the bindings of books and from joints of furniture, etc. That it should also cause increased surface evaporation in human beings is not surprising. Hence the necessity for drinking water at intervals during the day, especially for those in whom a certain amount of constipation with a tendency to hard stools shows that there is a diminished amount of water in the system, and that nature is only with difficulty able to carry on certain of her functions requiring water.

As the result of the successful employment of water to relieve many ordinary symptoms, it has become the custom to recommend water very generally and sometimes without sufficient deliberation. For the comparatively well, who need only to supply an equivalent for the moisture that is being lost—particularly through the skin and the lungs—the simple advice to drink plentifully of water is almost sure to be good. In many diseases, moreover, the ingestion of water is an efficient aid to other treatment. For example, in bronchitis, espe-

cially if the accompanying cough be hard and ineffective, the taking of large amounts of fluid is usually productive of good results. In fact, it is on this therapeutic principle that the reputation acquired by many of the old home remedies depends. A warm drink taken just before going to bed will often keep a patient from being annoyed by a cough during the night.

On the other hand, to recommend abundant drinking of water may be, for patients suffering with some diseases, decidedly poor advice. For example, in the case of cardiac affections with failing compensation, the necessity for an already weakened heart to overcome the resistance of a large amount of fluid in the circulation is certain to invite further deterioration of the heart muscle. One of the well-known and very serious forms of heart disease is the degenerative type which occurs in connection with the drinking of large quantities of such liquors as beer; the result is degeneration of the heart muscle and an extensive dilatation of the heart on account of overwork. It is easy to understand that a large amount of even so innocuous a fluid as water would tend to produce similar results. Whenever, then, there is loss of compensation in a heart that is laboring under some valvular defect, or under some degenerative process, the advice to drink plenty of water should be given with caution.

There is one class of cases, however, in which the unfortunately common custom of recommending the liberal drinking of water is likely to prove even more harmful than in heart disease. The first recommendation that too many physicians make to a patient suffering from almost any form of nephritis, unless there is marked ascites present, is to drink water abundantly. The idea is that in this way the system will be thoroughly "flushed out" and that the toxins in the circulation which may injure the kidneys will be diluted and made less harmful. The exclusive milk diet so often suggested for nephritis is really one expression of this old tradition. It must be remembered, however, that the value of this old-time advice lacks confirmation. Professor von Noorden, in his monograph on nephritis, has particularly insisted on the fact that this advice is often fruitful of more harm than good. In the American edition of his work on nephritis he says that water is always very badly excreted by the kidneys when they are acutely diseased, and frequently also in subacute and in subchronic forms of nephritis, though individual cases differ greatly in this respect. He insists that the only possible way to determine whether water, which is in many cases one of the best diuretics we have, is indicated or not, is to determine whether the output of water bears a definite relation to the amount ingested. He adds: "A condition of hydremia must be regarded as a constant source of irritation of the kidneys, and the problem that confronts us is to prevent excessive stimulation of these organs as much as possible."

It is evident, therefore, that water drinking, usually a physiologic, a hygienic and a remedial procedure of great value, in special cases may be attended with harm, and that the physician's advice to individuals should be given with reference to the particular case under consideration.

TUMORS OF THE CAROTID GLAND.

For complete obscurity of purpose there is no organ in the body that surpasses, in our present state of knowledge, the carotid gland. The sum total of information concerning its function may be considered as zero. Concerning its structure we are much better informed, thanks particularly to Marchand. Situated in or a trifle behind the bifurcation of the carotid, its greatest dimensions usually are between two and four millimeters, or about the size and shape of a kernel of rice, but it may be much smaller, and, according to some writers, it may be impossible to find it on one or both sides. It is most intimately connected with the sheath of the carotid artery, from which it appears to be developed, appearing rather early and reaching its maximum size in the sixth month of fetal life. Structurally, it is quite vascular, consisting largely of glomerular tufts of small vessels, surrounded by considerable numbers of cells of a distinctly endothelial type derived from the perivascular endothelial structures of the carotid. Such a structure hardly seems to indicate any considerable secretory activity, for the amount of cellular protoplasm is not such as we usually associate with glandular action, although the large number of vessels might lead to a different conclusion. Probably on account of their extremely small size, and a location that renders them practically unavailable for experimental studies, little seems to have been learned about them by the physiologists.

Pathologically, however, they are of interest as the possible starting point for tumor growth, and these tumors present particularly interesting problems to the surgeon. Although the literature contains only about a score of reported cases, yet there is every reason to believe that they are much more frequent than has been generally appreciated. During the past two years, since the special features of these growths have become a little more known, more cases have been reported than can be found in the entire literature before this period. In 1888, Jonathan Hutchinson described them well under the name of "Potato Tumors of the Neck," because of their shape, and brought out their chief characteristics: the location under the sterno-mastoid, the solitary nature, the potato- or kidney-like shape with frequent nodosities, the entirely local nature of the growth, occurrence particularly in men past middle life, and fatal termination usually in from one year to eighteen months. He mentions having seen at least eight cases up to that time. It is only within a very

recent time that we have had any general understanding of the characteristics of endothelial tumors, to which these tumors of the carotid gland belong, and this fact accounts for many of the failures to recognize the nature of the growths when they have been removed by surgeons; they can easily be mistaken for hyperplastic or lymphomatous glands in some cases, for sarcomatous glands in others, and even for carcinoma arising in branchial remains. Whenever a surgeon meets a solitary growth arising in close relation with the bifurcation of the carotid, in which it often lies, "like a meal sack," he should consider the possibility of a tumor of the carotid gland. In common with endothelial growths of different origin, these tumors seem to vary greatly in their degree of malignancy. Hutchinson speaks of a fatal occurrence as usual in from twelve to eighteen months, but, on the other hand, many of the reported cases seem to pursue a comparatively benign course; recently, indeed, certain French writers, after a review of the literature, questioned the advisability of operation in view of this apparent benignancy. Because of the intimate relation of the growth with the carotids, it is often impossible to remove it without ligation and resection of the common carotid, a procedure of no inconsiderable danger at the advanced age at which it usually occurs. Even where resection without ligation of the carotid is possible, its advisability is questionable in view of the possibility of recurrence in the carotid sheath within which the tumor originates. Gilford and Davis[1] report three typical and instructive cases which they have observed. In one, the common carotid was ligated and resected with the tumor; hemiplegia resulted and death from pneumonia followed in seven days. In the second case, the tumor was dissected away from the arteries, but in six weeks recurrence in the scar was observed, the growth developing rapidly, ulcerating, and causing death in five months. The third was inoperable, and was unique in being bilateral and in producing metastases in the liver; the patient, a man of 74, died from exhaustion eighteen months after the first appearance of the growth. Here we have illustrated three possible courses for the surgeon, but all failed to save the patient.

It is evidently, in view of these facts, extremely difficult to decide on the proper course of procedure in these cases. Operation is evidently hazardous; non-interference in some cases may be preferable, but in which cases will the growth be malignant and in which benign? Hence it is of the utmost importance that these peculiar tumors should be recognized as entirely different from all other growths arising in the neck, and that every case should be carefully studied and reported until the proper course of management can be determined; a thing now impossible because of our scanty information.

1. The Practitioner, 1904, p. 729.

TRUTH AND POETRY CONCERNING URIC ACID.

VI.

Slowly but surely, as we have seen, the truth concerning the formation of uric acid in the body was being found out. An origin from the metabolism of the nuclein of the body cells had been established; the possibility of the formation of uric acid directly from the nucleins or xanthin bases of the foods had been definitely demonstrated; and, as was hinted in the concluding paragraph of our last article, the possibility of a third mode of formation, namely, through synthesis of simpler chemical compounds, began to be considered.

Efforts to solve the problem as to whether or not synthetic formation of uric acid occurs in the body were made in various ways. Some tried to increase uric-acid excretion by feeding substances from which uric acid can be manufactured synthetically outside the body; others by feeding substances which are known to be derived from the decomposition of uric acid within the organism. The earlier experiments of this sort were negative. Horbaczewski, in 1882, tried feeding experiments with glycocoll, but got no marked increase in uric-acid excretion; a similar experiment by Weiss, in 1899, yielded negative results. Minkowski, in 1898, fed lactic acid and urea to dogs in the hope that these bodies might be synthesized to uric acid, but without obvious success. He was led to try the experiment by the fact that in birds from which the liver has been extirpated, the uric acid of the urine is replaced by lactate of ammonia, and, beside, Horbaczewski had synthesized uric acid *in vitro* from trichlorlactic acid and urea. Nor were experiments in which men were fed with these substances more successful (Hermann, 1888; Weiss, 1898).

Despite the discouraging influence of these early attempts at intracorporeal synthesis of uric acid, investigators continued to hope that the proof of the synthetic formation might yet be shown. This hope was fostered by a group of facts which made it seem improbable that the total formation of uric acid in the body can be accounted for without synthesis. Thus it had been shown that the feeding of glycerin increases the amount of uric acid excreted, and some feeding experiments made with fats and carbohydrates pointed to the probable synthetic formation of uric acid, under certain circumstances. The studies of Hopkins and Hope, in 1898, indicated that the excretion of uric acid after meat-eating occurs earlier and ceases sooner than that of other nitrogen compounds. The increase occurs too quickly to be accounted for by the absorption of nuclein, and, further, is not due to sudden excretion dependent on removal of preformed uric acid rendered more soluble. They thought, therefore, that some substance in meat, which can increase the excretion of uric acid, is absorbed by the stomach. Again, in 1899, Wiener showed the capacity of isolated organs to synthesize uric acid. Thus the isolated liver of animals

is capable of manufacturing uric acid from an alcoholic extract of various organs, even when this extract is free from nuclein and xanthin bases.

It was to comparative physiology, however, that investigators had to turn for help, in connection with the synthesis of uric acid in the animal body. It had long been known that certain animals, like birds and reptiles, excrete most of their nitrogen not as urea, as in mammals, but as uric acid. In these animals the amount of uric acid excreted varies with the amount of food ingested. It sinks in inanition; it is increased in all conditions which augment proteid metabolism. Substances which, when fed to mammals, are oxidized to urea are excreted in birds as uric acid. All these facts indicated that in birds and reptiles synthesis plays an important rôle in uric-acid formation.

A very important publication was made on this subject in 1886 by Minkowski.[1] This investigator, on extirpating the livers of birds, found that the nitrogen of the urine was present as ammonia, not as uric acid. And since ammonium lactate was present in the urine, he thought it probable that ammonia and lactic acid are important forestages in uric-acid synthesis, and that this synthesis is effected in the liver in birds. The idea soon gained ground that in the synthesis of uric acid two molecules of urea unite with some atom complex containing three carbon atoms, but no nitrogen. Minkowski thought that this non-nitrogenous atom complex is furnished by lactic acid, and his view received some support through the facts that the feeding of lactic acid to birds increases uric-acid excretion (Wiener, 1902), and that when lactic acid is passed through the isolated bird's liver uric acid is formed from it (Kowalewski and Salaskin, 1901).

In view of the high degree of probability that lactic acid takes part in the synthesis of uric acid in birds, it became important that the process should be more closely examined with special reference to its exact nature. Wiener,[2] in 1902, demonstrated that the administration of glycerin of various oxyacids, and especially of dibasic acids (of the aliphatic series) containing three carbon atoms, along with urea, increases markedly the formation of uric acid. Laboratory experiments had shown that urea can unite with dibasic acids containing three carbon atoms to form compounds called ureids, and that certain of these ureids can combine with another molecule of urea to form uric acid. While the feeding of any dibasic acid containing three carbon atoms to birds increases the uric-acid formation, Wiener found that when he used isolated organs only one dibasic acid, namely, tartronic acid (or its ureid) was effectual. He concluded, therefore, that other dibasic acids or their ureids are transformed into the ureid of tartronic acid in the process of uric-acid synthesis. Thus lactic acid (CH_3-CHOH-COOH), he thinks, is first transformed to tartronic acid (COOH-CHOH-COOH), and later unites with urea to form a ureid (dialuric acid), after which the addition of another urea molecule gives rise to uric acid. When the liver of the bird is removed, not only is the synthesis of uric acid itself prevented, but, in addition, the oxidation of lactic acid to tartronic acid is interfered with and ammonium lactate appears in the urine.

The principal mode of formation of uric acid in birds, then, is by the method of synthesis. Birds, however, do form some uric acid in the way in which it is chiefly formed in mammals, namely, through nuclein metabolism and through the transformation of the nucleins and xanthin bases of the food. We feel confident of this, because even after the removal of the liver in birds a little uric acid is excreted, and the feeding of hypoxanthin to birds deprived of their livers increases the amount of uric acid excreted (von Mach, 1888).

The question of a synthetic formation of uric acid in mammals and man now grew more interesting. If there are two modes of formation of the substance in birds, it would seem very probable that there are also two modes in mammals. On feeding lactic acid or dialuric acid (the ureid of tartronic acid) to human beings, Wiener, in 1902, found a slight but distinct increase in the uric-acid output. Now, since lactic acid is known to be one of the intermediary products of metabolism, he concluded that uric acid, under normal conditions, is synthesized, to a certain extent at least, even in man.

Another possible mode of formation of uric acid by the chemical union of simpler bodies is conceivable. It had been known since Strecker's work (1868) that uric acid can be broken up into glycocoll, carbon dioxid and ammonia. Maly suggested, as early as 1872, the possibility of a synthetic production of uric acid in the body from glycocoll, and ten years later Horbaczewski showed that, at any rate *in vitro*, glycocoll and urea can be synthesized to uric acid.

A beautiful experiment in physiologic chemistry, the synthesis by the kidney of benzoic acid and glycocoll with formation of hippuric acid, has for some time been known; it stimulated the imagination of investigators, and the relative excretion of hippuric acid and uric acid began to be watched. Weiss,[3] in 1898, asserted that after eating fruit the uric acid of the urine is decreased and the hippuric acid increased. He sought an explanation in the presence of China acid (tetraoxyhexahydrobenzoic acid) in the fruit, and assumed that the China acid in the body becoming changed into benzoic acid, unites with the available glycocoll to form hippuric acid, and so prevents the synthesis of uric acid from glycocoll. If this idea of Weiss were correct, then, as Wiener points out, all acids which can unite with glycocoll in the body

1. Minkowski, O.: Ueber den Einfluss der Leberextirpation auf den Stoffwechsel, Arch. f. exper. Path. u. Pharmakol., Leipz., vol. xxi, 1886, pp. 41-87.

2. Wiener, H.: Ueber synthetische Bildung der Harnsäure im Thierkörper, Beitr. z. chem. Physiol. u. Path., vol. ii, 1902, p. 42.

3. Weiss, J.: Beiträge zur Erforschung der Bedingungen der Harnsäurebildung, Ztschr. f. physiol. chem., vol. xxv, 1898, p. 393.

should have the same effect, and benzoic acid itself should act even more definitely than China acid. On administration of benzoic acid, however, though the hippuric acid is increased, there is no decrease in uric-acid excretion (Weiss, Lewandowsky); moreover, salicylic acid, which pairs easily with glycocoll and, according to Weiss' theory, should diminish uric-acid excretion, is held by a whole series of observers to be one of the few drugs which increases it. It has also been shown that hippuric-acid formation goes on entirely independently of uric-acid formation (Weintraud, 1900), so that the doctrine of a competition for the available glycocoll can scarcely longer be held.

The question of the synthesis of uric acid from glycocoll in the body, for the present, must be left open. That uric acid is formed, however, to a certain extent synthetically in man and mammals, we think, must be regarded as proved, even though the details of the combining processes are not yet fully understood. Minkowski's and Wiener's ideas have much in their favor, and we should not be surprised if the proof were ultimately brought that the synthesis of uric acid in the liver results from the union of tartronic acid, successively, with two molecules of urea. We are irresistibly led to the conclusion, therefore, that uric acid in the vertebrate animal body is formed both by an analytic and a synthetic process, the former predominating in man and mammals, the latter in birds and reptiles.

THE SMALL DEATH RATE FROM DISEASE IN THE JAPANESE ARMY.

If the facts reported in the newspapers are correct, the present war in Manchuria, especially as regards the Japanese losses, stands alone among the conflicts of modern times. It is said, on the authority of the chief surgeon of General Oku's army, that, out of presumably 100,000 combatants, only 40 died of disease during the seven months' active campaigning ending December 1. Out of 24,642 cases of disease treated, 18,578 recovered in field hospitals or while on duty; 5,609 were sent home for treatment, leaving only a little over 300 still on the army sick list at date of report. Allowing for considerable mortality among the cases sent to base hospitals in Japan these figures are almost if not absolutely record breaking. The fact is still more remarkable when we notice the record of typhoid fever and dysentery, ordinarily two of the most serious disorders of armies in the field. The Japanese figures are given as only 193 cases of the former and 342 of the latter. The medical department of the Japanese army must certainly have the secret of army sanitation. How much is due to racial peculiarities of the Japanese, whom we know to be a specially hardy and reasonably temperate people, is also an interesting question, but one that can not be satisfactorily answered. Of course, due allowance must be made for the fact that the figures on which we comment are by no means official, but it is quite evident that Japan has not had to contend with any very serious illness in the army in the field.

EFFECTIVE LOCAL ORGANIZATION.

Cleveland offered some of the earliest examples of progressive methods in medical organization, and proof of development in this line has been offered in a little brochure, just issued, entitled "The Academy of Medicine of Cleveland—Reports of Officers and Committees—1904." This pamphlet is an inspiration to hearty co-operative work, and should be read especially by those connected with similar societies. The reports can not adequately be summarized, but a few points may be noted to show the range of the work done. A special committee interviewed the newspaper editors regarding the protection of the members of the society from objectionable publicity. The regulation of ambulance service was considered, unethical medical institutions were investigated by a committee, and a city ordinance was secured that reduced the casualties of the Fourth of July celebration. The project for the academy and library to own a permanent home that would conveniently house all the medical activities also was considered. Remarkably good results were attained by a systematic canvass for new members, and the financial report is excellent. The report of the legislative committee is peculiarly interesting and instructive. The work of the committee on public health continues to be a model of efficiency. It holds regular weekly meetings, to which the president of the board of health and the health officer have a standing invitation. Thus the society has kept in close touch with the civic health, and it has exerted great influence in this direction on the city officials and citizens generally. The work of the academy, as a whole, has been crowned with success, and this success should stimulate like efforts in other towns and cities.

ERRORS IN OBSERVATION.

The physician is thoroughly conversant with the fact that observation is apt to be erroneous, and that the patient's story must often be liberally interpreted in accordance with other facts observed. Some interesting experiments are reported in the Berlin *Blätter für Volksgesundheitspflege*. Dr. L. W. Stern of Breslau examined twenty-four pupils concerning the details of an assembly room in which the class had met eight days before. The questions concerned the number of windows and doors, whether or not the windows were barred, etc. The results showed that every fifth statement was positively false; but that statements under oath were slightly more accurate. For example, the percentage of error was from 18 to 27 per cent. in ordinary statements, and from 8 to 10 per cent. under oath. In another experiment, a man entered the room, spoke to the instructor, handed him a manuscript, asked permission to consult a case of books in the room; took from this case a book which he read for five minutes, left the room with the book in his possession, etc. Eight days later, the spectators were asked to describe the whole proceeding. The positive statements were one-fourth false; statements as to what was said, one-third false. Dr. Stern says that the reports taken together formed "such a chaos of contradictory statements that if a judge had merely these statements to form an opinion by he could not possibly reach any

conclusion." These experiments are interesting. We have before referred to a similar experiment in which a quarrel took place in a clinical amphitheater, and the students were examined concerning the details some days afterward. These results lend emphasis to the necessity for careful consideration of all facts in diagnosis, and the danger of placing too great dependence on any one statement by the patient which may be the crucial point of any decision.

THE DEPENDENT EPILEPTIC.

While it is gratifying to note the increased interest shown in late years in the public care of epileptics, the care of these patients still lacks much of being what it should be. To Ohio belongs the credit of taking the lead in this matter, when she established, in 1890, the Ohio Hospital for Epileptics at Gallipolis, where 1,000 patients are now being cared for. According to recent reports, the capacity of the Ohio Hospital should be increased, for on Feb. 1, 1905, there were 250 patients awaiting admission, while the total epileptic population of the state, most of whom will probably become public charges sooner or later, is estimated at 2,750. New York State followed next in order, by founding, in 1894, the Craig Colony at Sonyea in Livingston County, which is still the only institution in the United States strictly along colony lines. At the Sonyea institution there are 1,006 patients, and nearly as many more are on the waiting list. The estimated epileptic population in New York State is 14,000. Sonyea is about to make provision for 250 additional patients, and it expects ultimately to care for 1,800 or 2,000 on its extensive area of 1,895 acres. Almost coincidently with New York, Massachusetts took up the question, and the Hospital for Epileptics at Palmer reflects the practical interest shown in that state. The number of patients at Palmer has reached 500, and there are 200 awaiting admission. The estimated epileptic population of Massachusetts is 10,000. The New Jersey Village for Epileptics at Skillman, near Princeton, was the fourth state institution to be founded. It now has 150 patients with 450 on the waiting list. The estimated number of epileptics in New Jersey is computed at not less than 2,500. Texas and Kansas are the most recent recruits among the states in this work. On a tract of 640 acres at Abilene, Texas, there has recently been established an epileptic colony that now has 220 patients, with a waiting list of 300, while it is estimated that there are 1,000 other dependent epileptics in the "Lone Star State." The State Hospital for Epileptics at Parsons, Kans., was opened a short time ago. It already has 200 patients, and, like the other institutions mentioned, it has a large waiting list. Indiana is now in line, for the higher branch of its legislature has appropriated $150,000 with which to begin the building of a colony for epileptics in that state. The Indiana bill provides a tract of not less than 1,000 acres of land at the outset. Most public institutions of this kind start with too small an acreage, and it is gratifying to learn that Indiana intends to avoid this particular mistake.

THE EARLY PUBLICATION OF THE RESULTS OF ORIGINAL RESEARCH.

Of all the various kinds of articles published in medical journals, the most important, all things considered, is the article embodying results of real investigative work, whatever the field occupied may be, in which a real effort has been made to enlarge the bounds of knowledge concerning the problems studied. This is the kind of article that the great American medical public as yet appreciates the least, and we fear that sometimes even medical editors are a little slow in grasping its value. In this country, in particular, medicine needs work of this kind, because we have been so much occupied with organization and with the necessary teaching of old knowledge that there has not been energy and opportunity enough to furnish what would seem to be a creditable share of new knowledge. Consequently, we have become good compilers and facile writers, which at times may be detrimental to critical penetration. It may be taken for granted that no well-educated physician will ever doubt the ultimate practical value of "the knowledge that ripens on the tree of medical science." It takes so long before the new fact, the new point of view, become part and parcel of general medical knowledge that no time should be lost in starting the new fact, or the new idea, on its career of increasing the usefulness of the medical profession. In many quarters doubt, uncertainty and opposition may be aroused by the publication of new work, and this may result in quickening of the investigative activities in many laboratories and clinics. Almost without exception, good new work is sure to prove of direct benefit to other workers in the same and in related fields. A large share of excellent, often epoch-making, investigative work in medicine has been done, and no doubt will continue to be done by comparatively young investigators. To many of them, the satisfaction incident to publicity may be the sole, immediate reward for many hours of patient toil in some obscure corner. Consequently, there is no good reason for unnecessary delay in the publication of the results of investigative work carried to a proper and natural finish. Everything speaks in favor of prompt publication, and in the case of general medical journals, articles of this kind, especially when it concerns problems in preventive and practical medicine, should have the right of way over those that do not present original work at first hand.

Medical News.

DELAWARE.

Voodoo Doctor Sentenced.—Daniel Hector, a colored voodoo doctor, pleaded guilty of witchcraft and fortune telling. He was sentenced, February 10, to be imprisoned for nine months and to stand in the pillory for one hour.

Personal.—Dr. Charles P. White, Wilmington, has been appointed assistant medical examiner for the Pennsylvania system at Pittsburg.——Dr. Samuel G. Elberts was thrown from his carriage, February 7, and broke his arm.——Dr. Joseph M. Martin, Lewes, was operated on for appendicitis, January 28.——Dr. John C. Fahey, former mayor of Wilmington, was operated on for abscess of the throat, February 3.

ILLINOIS.

Measles is reported to be epidemic at Curran.

Epidemic Disease at Lacon.—For the second time within three months, Lacon is suffering from an epidemic of scarlet fever, and now diphtheria also has appeared. The public schools have been ordered closed.

Board Increases Scope.—The scope of the work of the laboratory of the State Board of Health is to be so increased that it will become of greater benefit to the physicians of the state. With this end in view, container stations will be established in every county of the state where containers for bacteriologic specimens and blank forms for transmission may be secured in the shortest possible time. It is probable that these containers will be placed in the hands of the secretaries of county medical societies for distribution.

Chicago.

President Harper Ill.—President William R. Harper of the University of Chicago, who was operated on for appendicitis in March last, and who has been ill since September, is suffering from a tumor of the cecum. Dr. Harper's condition is causing his medical advisers great concern, and it is possible that operative interference may be necessary.

Smallpox is Marching On.—During the week 27 cases of smallpox were sent to the Isolation Hospital. Four had old scars said to be from vaccinations made in childhood, but had never been revaccinated; 23 never had been vaccinated at all; 7 were unvaccinated children under the school age of 6 years. Twelve of the patients came from the downtown lodging-houses.

Deaths of the Week.—During the week ended February 11 there were 554 deaths reported, equivalent to an annual mortality of 14.50 per 1,000. The rate for the previous week was 13.88, and for the corresponding week of 1904, 17.88. Pneumonia, as usual, leads, with 118 deaths; then follow consumption, with 68; bronchitis with 40; heart disease with 37; Bright's disease with 32, and violence with 30. Smallpox caused 2 deaths; scarlet fever, 3; measles, 8; diphtheria 11 and influenza 12.

Comparative Infectious Disease Mortality.—Since the first of the year there have been 76 deaths from diphtheria, 42 from whooping cough and 30 from measles, as compared with 63 from diphtheria and 1 each from measles and whooping cough during the corresponding period last year. On the other hand, there have been only 12 deaths from scarlet fever, as against 27 last year, and both bronchitis and pneumonia show marked reductions—the respective figures being 164 and 184 for bronchitis and 748 and 827 for pneumonia.

MARYLAND.

Personal.—Dr. Bertha D. Berger, physician in charge of the Good Samaritan Hospital, Baltimore, has recovered from an operation for appendicitis.

Alumni Incorporate.—The General Alumni Association of the University of Maryland was incorporated on February 4 for the purpose of creating closer relations between the alumni of the various departments of the university and the advancement of its interests.

State Board Election.—The following election of medical officers of the State Board of Health is announced: President, Dr. William H. Welch, Baltimore; executive committee, Drs. James Bosley, Baltimore, Dr. Edwin J. Dirickson, Berlin, Douglas H. Thomas, Jr.; medical assistant, Dr. Marshall L. Price; bacteriologist, Dr. William R. Stokes, and assistant bacteriologist, Dr. C. W. G. Rohrer, all of Baltimore.

Hospital Opens.—A formal opening of the Baltimore Eye, Ear and Throat Charity Hospital, Baltimore, was held February 9. This marks the completion of extensive improvements and additions to both buildings, including erection of a fire escape, installation of electric elevator, changes in main building affording accommodations for more patients, and the reconstruction of a part of the original dwelling in the rear of the new portion of the hospital in which commodious and comfortable wards have been provided for colored patients.

Medical Library Report.—The report of the medical library of the University of Maryland, prepared for a government publication, shows the present size to be 5,000 volunteers, with 50 current journals, 400 duplicates, and 3,000 pamphlets. The additions since July 1, 1903, have been 1,800 volumes. There are two librarians and the collection is open to readers from 9 a. m. to 5 p. m. daily. The library is a circulating one, and all the privileges of it can be secured by any physician by the payment of $2 a year. The collection has had a continuous existence since 1813, and is, therefore, one of the oldest medical libraries in America. It is also one of the best and best conducted, having a very complete card catalogue. Recent additions have been the library of the late Dr. A. H. Powell, and a large part of that of the late Dr. Julian J. Chisolm. At present it occupies a suite of rooms in the main university building, but it will be moved in the spring to larger and better quarters. The collection is especially rich in rare works of the sixteenth and seventeenth centuries, the original nucleus purchased on the death of Dr. John Crawford.

MASSACHUSETTS.

Hospital Improvements at Waltham.—Several improvements are to be made in the Waltham Hospital. About $75,000 will be expended in remodeling the interior of the administration building and the addition of an engineer's room.

Died Outside Hospital Gate.—Newspapers have been criticizing the management of the Massachusetts General Hospital because of the refusal of the office attendant to do anything for a man who had fallen unconscious just outside their gate. When the police were summoned and he was carried in by them he was found to be dead.

Health Appropriations.—Mayor Collins of Boston recommends the following appropriations: Bath Department, $160,000; Health Department, $200,000; Hospital Department, $485,000; Children's Institution Department, $188,000; Insane Hospital Department, $169,000; Pauper Institutions Department, $205,100, and Water Department, $904,309. This is an increase of $5,000 to the Bath Department and of $4,000 to the Health Department, while the Hospital Department remains unchanged, and there is a net decrease in the Insane Hospital Department of $36,000, owing to the assumption of the state of the care of some of this class of patients.

NEW YORK.

Typhoid in Poughkeepsie.—Poughkeepsie has a typhoid fever epidemic. It takes its water from the Hudson River and filters it. The state hospital sewer enters the river just above the intake.

Site Without Water.—It is reported that the site for a state insane hospital in the wilds of Washington County purchased for $42,000 has no water supply and that $30,000 additional will be required for this purpose.

Adulterated Jelly in Buffalo.—Dr. G. Hudson Grant of the State Agricultural Department has found adulterated food in Buffalo. It was sold in currant jelly for three cents per pound. On examination it was found to be composed of cornstarch and glucose and colored with anilin dye. The manufacturer was fined.

Illegal Practitioners.—The board of censors of the Medical Society of the County of Erie appeared before the state board of regents regarding the illegal practice in Erie County by two practitioners who have medical degrees but have not passed the state board examinations. One of the accused cheated in the state examinations, so had his papers rejected.

Stony Wold Sanatorium Needs Money.—At a meeting of the directors, the chairmen of the finance committee announced that $96,000 must be raised for improvements and for current expenses if they were to carry on the work of combating tuberculosis successfully. They were in pressing need of a new dormitory which would cost $50,000, and $5,000 would be required to assist in its maintenance.

Osteopaths Demand Recognition.—With a determination to secure recognition from the state at the present session of the legislature, the osteopaths of New York state have had prepared an act regulating the practice of osteopathy and fixing the penalties for violation. The bill will be vigorously fought by the legislative committees of all the state medical societies, as has been done successfully for the past seven years.

Still More Bills Before the Legislature.—The problem of securing proper legislation increasing the source and supply of water for New York City, on the one hand, and the scramble of rural legislators to build a Chinese wall around their respective counties, on the other, have resulted in the most remarkable aggregation of water measures that have ever come

before this body, and have dwarfed every other issue now before the legislature. The whole subject of water supply, as it affects New York City, will be thrashed out before the several committees or joint hearings next week.——A bill has been introduced to regulate the practice of osteopathy along the lines prescribed for regular medicine. It provides for the appointment by the regents of a board of five examiners from a list to be submitted each year by the New York Osteopathic Society. It specifies in what subjects candidates shall be examined, and provides that such candidates must be graduates of a twenty-seven months' course at a regular school of osteopathy. The maximum penalty for practicing osteopathy without a license is fixed at $250 fine or six months' imprisonment for the first offense, and twice that amount for subsequent offenses. A similar bill was defeated two years ago in committee.——The Senate Cities Committee has reported favorably on the Elsberg bill abolishing the coroners in New York City. The bill will probably pass the senate next week. ——A bill has been introduced in the legislature which abolishes the boards of visitation and creates local boards of seven members each, to be appointed by the governor and removed by him, to serve without compensation. Control of expenditures and the general supervision are still to rest in the State Commission in Lunacy.

Buffalo.

Measles in Asylum.—There are 62 cases of measles at the Buffalo Orphan Asylum.

Appointments.—Mayor Knight has appointed Drs. Lawrence G. Hanley and George H. McMichael civil service commissioners.

Cigar Makers Have Phthisis.—It is stated that 50 per cent. of all workers in cigar factories in Buffalo ultimately die of consumption.

Consumptive Domiciles.—A list of all houses showing more than one death from consumption has been submitted to the health department by the charity organization committee on tenements, there being 146 houses of the kind. Much work has been done in fumigating such places. The committee has a card index of all such cases.

Milk Inspection.—According to investigations made by Health Commissioner Greene there are about 800 milk dealers outside of the city who send their milk to Buffalo. The aggregate amount of milk thus obtained is 9,000.000 gallons per year. He desires the ordinance changed so that five additional milk inspectors and one assistant bacteriologist may be appointed for Buffalo.

New York City.

New Health Officer for Brooklyn.—Dr. Thomas L. Fogarty has been appointed assistant sanitary superintendent for the Borough of Brooklyn.

Cerebrospinal Meningitis.—This disease has gained such prevalence during the past month among the children that physicians fear a return of the epidemic of a year ago.

City Raises Salaries.—The salaries of many employes in city departments have been materially increased. The health department has received $15,494 for this purpose; Bellevue and the allied hospitals $6,868, and the department of charities $11,000.

Contagious Diseases.—There were reported to the sanitary bureau for the week ended February 4, 343 cases of tuberculosis, with 180 deaths; 311 cases of diphtheria, with 49 deaths; 233 cases of scarlet fever, with 15 deaths; 185 cases of measles, with 8 deaths; 135 cases of chickenpox; 32 cases of typhoid fever, with 10 deaths; 1 case of smallpox, with 1 death; and 33 deaths from cerebrospinal meningitis. This is a total of 1,240 cases and 296 deaths.

War Against Spitters.—The health department has begun work against the spitters in earnest. Twenty-five sanitary squad policemen have been detailed to look after this class of offenders during the evenings in the streets of the city. A large number of arrests were made during the first evening, among them two in the lobby of the Metropolitan Opera House. Hitherto offenders have been warned and only arrested when they failed to obey, but henceforth no warning will be given.

Food Adulteration.—At a meeting of the New York Health Protective Association, February 8, Dr. R. E. Doolittle of the United States Department of Agriculture showed samples of various adulterated articles of food. He said that most of the jellies sold by grocers came from the refuse of dried apple factories and consisted of starch paste, sweetened with glucose, colored with coal-tar dyes, flavored with chemicals and preserved with salicylic acid. Coffee was adulterated with chicory, pea hulls and wheat middlings, many flavorings are about 90 per cent. wood alcohol, cream of tartar is plaster and phosphate of lime, etc. The members of the association thought that as we were protected against adulterated imported articles, it would be better to use imported products of this class, and thus bring our home manufacturers to see that it would be to their advantage to furnish a pure article. The influence of the Health Protective Association was sought for the purpose of urging the passage of the food bill now before congress.

OHIO.

Hospital Notes.—Elyria Hospital was formally opened January 23, with a public reception. The institution has accommodation for twenty patients.——Columbus Children's Hospital will receive more than a quarter of a million dollars by the will of the late William W. Franklin.

Library Association Meeting.—At the second annual meeting of the Cincinnati Medical Library Association, Dr. Henry W. Bettmann was elected president; Dr. Joseph Eichberg, vice-president; Dr. Alfred Friedlander, secretary; Dr. William H. Crane, treasurer, and Dr. Arch I. Carson, librarian.

State Board Will Aid in Diagnosis.—To aid physicians in making a diagnosis in suspected or doubtful cases of certain of the infectious diseases, and thereby to enable the health authorities better to control them, the State Board of Health offers to make examinations free of charge, on the request of any physician, of specimens from suspected cases of pulmonary tuberculosis, diphtheria or typhoid fever.

Academy Election.—At the annual meeting of the Academy of Medicine of Toledo and Lucas County, January 18, the following officers were elected: Dr. Thomas Hubbard, president; Dr. William G. Dice, vice-president; Dr. Louis A. Levison, secretary; Dr. John G. Keller, treasurer; Dr. James A. Duncan, financial secretary, and Drs. William J. Gillette, Oscar Hasencamp, Herbert E. Smead and William H. Fisher, censors, all of Toledo.

Personal.—Dr. Joel B. Taylor has been appointed a member of the Marion Board of Health, vice Dr. Elmer O. Richardson, resigned.——Dr. William C. Heintz, Columbus, is ill with typhoid fever at Grant Hospital in that city.——Dr. John C. Reeve, Dayton, was the guest of honor at a banquet, February 9.——Dr. Kent B. Waite, Cleveland, has been adjudged insane and committed to the State Hospital for the Insane.——Dr. Robert C. Chamberlain, Tiffin, has been elected physician to the Seneca County Infirmary.——Dr. Harry E. Welch, Youngstown, has been made local surgeon for the Erie Railway, between Girard and Hubbard.——Dr. George C. Altmeier, Cincinnati, has been appointed district physician of the twenty-second ward, vice Dr. Augustus J. Hofling, deceased.——Dr. Edward S. Johnston, Cincinnati, who was recently operated on for appendicitis, is making satisfactory progress toward recovery.

PENNSYLVANIA.

Personal.—Dr. J. C. Biddle, superintendent of the State Miners' Hospital at Ashland, was thrown from his sleigh on January 30, and severely injured.

Norristown's Vital Statistics.—The annual report of the bureau of vital statistics shows that there were 402 deaths last year, an increase of 68 over the preceding year, and 350 births, an increase of 50 over 1903.

Smallpox at Portage.—Smallpox threatens to become epidemic at Portage, Cambria County. Several new cases have been reported, and it is asserted that more than a score of patients are afflicted. The State Board of Health has ordered the town authorities to provide an isolation hospital, and unless this order is complied with, the town may be quarantined.

Chicken-pox at Gettysburg.—The cases of supposed smallpox reported in Gettysburg College have been pronounced by Dr. William M. Welch, of the Municipal Hospital, Philadelphia, to be typical cases of chicken-pox. Dr. Welch made the investigation for the board of health at the request of the college faculty. The cases were first reported in the lay press to be smallpox.

Philadelphia.

Personal.—Dr. Frank C. Parker was elected assistant surgeon at the Wills Eye Hospital, vice Dr. Archibald G. Thomson, resigned.

Lectures on Care of Teeth.—On Fridays in March the public school children and their parents are to be enlightened on the care of the teeth by a series of talks, to be given in the school buildings throughout the city by Dr. J. Ashley Faught.

Spring Will Soon Be Here.—As a result of the persistent complaints of the patrons of the city trolley cars as to their unheated and insanitary condition, the president of the traction company has promised that in a short time all cars of the city shall be properly heated.

Bequests.—By the will of Mary C. Dulles, a contingent bequest of $10,000 is made for the maintenance of the Margaret Welch Dulles Memorial ward in the Presbyterian Hospital. The will also bequeathes $2,000 for improvements to the Presbyterian Hospital; the Childrens' Seashore Home receives $1,000, and Day Nursery $1,000, and the Presbyterian Orphanage, $2,500.

Explosion at Samaritan Hospital.—An explosion of ether occurred in the operating room in the Samaritan Hospital, February 10, during a tracheotomy. Oxygen used in the operation blew the ether into the gas flame, resulting in its explosion. Dr. H. C. Cunningham, the resident physician and anesthetizer, and Dr. H. A. Duncan were rather severely burned. Two medical students were also slightly burned. The patient was uninjured.

Hospital Reports.—Report of the hospitals for January are as follows: The Polyclinic Hospital admitted 124 patients to the wards, and treated 1,280 new cases in the dispensary; a total of 6,103 patients were treated in the different dispensaries, and 593 accident cases were received.——The Medico-Chirurgical Hospital treated a total of 5,438 patients.——One hundred and eighty-three patients were admitted to the wards of St. Agnes Hospital, and the total number treated in the different dispensaries aggregated 2,366.

Health Report.—The total number of deaths from all causes for the week ended February 4 aggregated 538. This is an increase of 39 over those of last week and a decrease of 85 as compared with those of the corresponding period of last year. About one-third of the deaths resulted from lung affections. Of these, 100 deaths resulted from pneumonia and 56 from pulmonary tuberculosis. There were 22 deaths from cancer, 25 from apoplexy, 61 from heart disease, 47 from Bright's disease, 20 from enteritis, and 7 from typhoid fever. There were 188 cases of contagious disease reported, with 20 deaths, as compared with 207 cases and 23 deaths for the preceding 7 days. The total number of deaths reported for last week was 612. This is an increase of 74 over those of last week, and an increase of 44 over the corresponding period of last year. One hundred and seventeen deaths resulted from pneumonia alone, which is an increase of 35 over those of last week. The deaths from tuberculosis were also unusually high, numbering 67. Influenza caused 13 deaths. Several other deaths resulted from acute inflammation of the respiratory tract, which also should probably be classified with the deaths resulting from pneumonia; 15 of these were reported as congestion of the lung, and 19 from acute bronchitis. The deaths from disease of the respiratory tract aggregate more than one-fourth of the entire number of deaths from all causes. The principal causes of death were as follows: typhoid fever, 8; diphtheria, 11; influenza, 13; tuberculosis, 67; cancer, 13; apoplexy, 26; heart disease, 71; inflammation of respiratory tract, 152; Bright's disease, 50; senility, 24. The contagious disease cases reported number 199, with 23 deaths, as compared with 208 cases and 20 deaths for the preceding week. There were 19 cases of typhoid fever reported.

Jewish Hospital Staff.—The following physicians have been appointed for the ensuing year to the staff of the Jewish Hospital by the president, William B. Hackenburg: Consulting surgeons—Drs. William W. Keen, J. William White, John B. Roberts, Edward E. Montgomery, Orville Horwitz, John M. Baldy, and Charles P. Noble. Surgeons—Drs. Benjamin B. Wilson, Lewis W. Steinbach, William H. Teller, William L. Rodman, Max J. Stern, and Melvin M. Franklin. Orthopedic surgeon—Dr. DeForest Willard. Ophthalmologists—Drs. Isaac Leopold and Jay C. Knipe. Neurologists—Drs. Francis X. Dercum and Max H. Bochroch. Otologists—Drs. S. MacCuen Smith and Eli L. Klopp. Laryngologists—Drs. Arthur W. Watson and Louis Jurist. Obstetrician—Dr. William H. Randle. Pediatrists—Drs. Thompson S. Wescott, Ludwig Loeb and Joseph B. Potsdamer. Pathologist—Dr. Courtland Y. White. Dermatologist—Dr. Jay F. Schamberg. Radiologist—Dr. Sydney L. Feldstein. Consulting physicians—Drs. John H. Musser, James Tyson, James C. Wilson, Roland G. Curtin, Alfred Stengel, James M. Anders, and Lawrence F. Flick. Consulting pediatrist—Dr. J. P. Crozer Griffith. Physicians—Drs. Adolph Feldstein, Thomas Betts, Solomon Solis-Cohen, William A. Cross, Francis X. Dercum, David Riesman and Courtland Y. White. Assistant physicians—Drs. Moses H. Behrend, Bernard Kohn, William A. Rocap, Edwin I. Becker, Victor A. Loeb, Maurice J. Karpeles, Harry F. Webster, Myer Solis-Cohen, George P. Katzenstein, Louis H. Jacobs, Milton K. Myers, William Shields, George W. Cook, Samuel Leopold, Mortimer Herzberg and Robert F. Ridpath. Chief resident physician—Dr. Edwin A. Jarecki.

Bills Before the Legislature.—A bill suggested by Coroner Dugan, as a result of several recent sensational murder trials, will be introduced into the legislature asking the prohibition of the use of embalming fluids containing arsenic, mercury or carbolic acid, and asking that these agents shall not be used in the preservation of dead bodies and shall not be used in embalming fluids. Among other bills introduced is one making vaccination compulsory on all persons who have not been successfully vaccinated within 5 years, and providing for arrest and fine for violation of the law. Another health bill requires the examination and licensing of midwives. A bill relating to vital statistics has been presented, making failure of midwives or physicians to report births, clergymen or magistrates to report marriages, or physicians to report deaths a misdemeanor. The most important bill introduced is one giving absolute power to the boards of health of all cities, counties, townships and boroughs, in dealing with cases of contagious disease. There are included in the list of contagious disease, beside smallpox, diphtheria and scarlet fever, such maladies as chicken-pox, measles, mumps, whooping cough, influenza and pneumonia. In all cases the boards are to have power to make rules and regulations governing reports to be made by persons attending the sick, the quarantining and disinfecting of persons and premises, the placarding of notices, and the placing of guards to enforce the same; the total destruction of infected bedding, clothing or other articles; the care and burial of persons who may have died from these diseases; fixing the limit of time for burial; methods to be used in advertising the funeral; the disinfection of all conveyances used in the burial; the attendance of persons at public and private schools, and the compulsory vaccination of all persons employed therein.

Tuberculosis Decreasing.—According to the statement made in the first annual report of the Henry Phipps Institute, tuberculosis is on the decrease in this city. This statement is based on the results of investigation of the official records from 1861 to 1903, inclusive. The report shows a rapid decrease from 1887 to 1897, inclusive, a slight decrease prior to 1887 and a slight increase after 1897. In 1870 the mortality from the disease was the highest, the death rate being 3.78 for 1,000. The report attributes this to the influence of the Civil War, which had just closed. From 1871 to 1874 there was a steady decline, but from 1874 to 1876 there was an increase of 0.37 per 1,000. This may have been accounted for, they claim, by the large number of persons visiting the city during the exposition and by the epidemic of smallpox in 1872. The apparent decrease from 1876 to 1880 is not a true one. It was estimated on the figures published by the board of health, which were disproved by the census of 1880. The mortality in 1880 was 3.27 per 1,000. From that time to 1902 there has been a continual decrease, but in 1903 there was an increase of 0.12 per 1,000. This slight increase may be due in part to a great increase in emigration from Russia and Poland, it having been double that of the ten previous years. The principal cause, however, they believe, is the accuracy in diagnosis through the bacteriologic department of the board of health. The report further shows that in 1903, 2,039 patients were received and treated in the Henry Phipps Institute; of these 1,130 were native born, 769 were foreign born, and 140 had no nativity record. Many of the foreign-born had been in this country so short a time that it was assumed they had the disease when they landed here. The number of negroes admitted was about 6½ per cent. of the whole number, but the proportion of negro admissions to white admissions was greater than is the proportion of the negro to the white population of the city. The longest stay of any patient in the hospital was 286 days, and although this was an advanced case the patient improved steadily. The results of treatment show that 537 cases were reported improved, 583 unimproved, 884 not recorded, and 153 died. The report also contains a paper on "The History of the Tuberculosis Work at Saranac Lake," by

Dr. Edward L. Trudeau; one on the "Home and Its Relation to the Tuberculosis Problem," by Dr. William Osler; "Pulmonary Tuberculosis," by Dr. G. Sims Woodhead of London, Eng.; "The Administrative Control of Tuberculosis," by Dr. Herman M. Biggs, and "Specific Therapy of Tuberculosis," and "Vaccination Against the Disease," by Dr. Edward Maragliano of Italy. The first report is very complete, and shows that the work of the year has been most thorough.

RHODE ISLAND.

Accidental Asphyxiation.—Dr. Elmer B. Eddy, Olneyville, Providence, was found unconscious in his office, January 30, from gas asphyxiation. After an hour's work Dr. Austin H. Longfellow pronounced Dr. Eddy out of danger.

Election at Newport.—The Newport Medical Society, at its annual meeting, elected the following officers: Dr. Christopher F. Barker, president; Dr. V. Mott Francis, vice-president; Dr. Mary E. Baldwin, secretary; Dr. Douglas P. A. Jacoby, treasurer; Dr. Harry J. Knapp, curator; Dr. William A. Sherman, bacteriologist; Drs. V. Mott Francis, William S. Sherman, and Samuel P. Cottrell, executive committee, and Drs. William S. Sherman, Douglas P. A. Jacoby, and Stephen C. Powell, censors.

TENNESSEE.

Hospital To Be Built.—A permit has been issued for the building of a hospital for the Tennessee Medical College, Knoxville, to cost $30,000.

Personal.—Dr. J. Sinclair Dye has been appointed to succeed himself as city physician of Chattanooga.——F. Emmett Downey, a member of the senior class of the medical department of Grant University, Chattanooga, died recently at the Erlanger Hospital in that city, after an illness of two weeks, aged 22.

Trouble at Knoxville General Hospital.—In consideration of the open antagonism of W. P. Chamberlain, chairman of the board of governors of the Knoxville General Hospital, Drs. Charles P. McNabb, Samuel M. Miller, Benjamin B. Cates, Ernest R. Zemp, Walter S. Nash, Samuel L. Jones, Benjamin F. Young, and A. G. Kern have resigned from the staff of the institution.

Hospital Staff Enlarged.—The staff of Erlanger Hospital, Chattanooga, has been increased by ten, five of whom, Drs. William T. Hope, William A. Applegate, Frank T. Smith, Philander D. Sims and L. Y. Green are selected from the faculty of the medical department of the Grant University, and will serve from October, 1905, to April, 1906. The other five, selected from the Chattanooga and Hamilton County Medical Society, will go on duty April 1, 1905, and serve until October 1. They are Drs. Clarence A. Cobleigh, Abraham W. Boyd, Thomas E. Abernathy, Edward B. Wise and Young L. Abernathy.

Society News.—Humphreys County Medical Association, at its annual meeting, elected Dr. James J. Teas, Bakerville, president; Dr. W. R. Horner, Clydeton, vice-president, and Dr. Claude C. Sullivan, Waverly, secretary and treasurer.——At its annual meeting, the Rutherford County Medical Society elected Dr. Enoch H. Jones, Murfreesboro, president; Dr. Edgar C. Freas, Lascassas, vice-president; Dr. Rufus Pitts, Murfreesboro, secretary; Dr. Vernon K. Earthman, treasurer; Dr. Edgar C. Freas, Lascassas, delegate to the Tennessee State Medical Association; Dr. Harry C. Reese, Murfreesboro, alternate, and Dr. James B. Murfree, Sr., Murfreesboro, censor.

TEXAS.

La Grippe is said to be epidemic at Denton, where 1,200 cases are reported, and at Taylor, where, it is said, there are 700 cases.

Sanitarium Opened.—Providence Sanitarium, Waco, built and equipped by the Sisters of St. Vincent de Paul at Dallas, at a cost of $150,000, was formally opened January 11.

Smallpox.—At Eddy the disease is prevalent and a strict quarantine is maintained.——Miles has had about 50 cases, without a death.——The city health officer of Rockdale, on January 29, in a house-to-house visitation, vaccinated 200 negroes. The disease is confined to the negro population.——Mail delivery at Hartzo has been stopped by the postoffice department on account of the prevalence of the disease, which made its appearance at the postoffice building.

Quarantine Officers Named.—On the recommendation of Dr. George R. Tabor, state health officer, the governor has appointed the following state quarantine officers: Dr. Edgar F. McClendon of Bastrop County, at Galveston; Bartlett N. Sims of Kendall County, at El Paso; P. J. Shaver of Hunt County, at Sabine; John M. McKnight of Webb County, at Laredo; Isaac H. Brewton of Val Verde County, at Eagle Pass; J. H. Florence of Dallas County, at Brownsville; T. J. McFarland of Lavaca County, at Pass Cavallo; John F. Eaves of Brazos County, at Aransas Pass, and Benjamin H. Carleton of Brazoria County, at Velasco.

Personal.—Dr. John S. Turner, Ferrell, has been re-elected superintendent; Dr. James R. Nichols, Terrell, first assistant physician, and Dr. George F. Powell, Terrell, second assistant; Dr. W. M. Fullbright, Mount Vernon, has been elected third assistant, vice Dr. Scott Appleby, resigned, and Dr. C. M. Poff, Ellis County, fourth assistant, vice Dr. A. LaP. Thomas, resigned, all of the North Texas Hospital for the Insane, Terrell.——Dr. A. B. Gardner, Denison, was thrown out of his buggy, in a runaway, January 5, and fractured his clavicle.——Dr. Thomas J. Bennett, Austin, to avoid running over a boy, January 29, turned his automobile so suddenly that it overturned, wrecking the machine and severely bruising Dr. Bennett.

VERMONT.

Personal.—Dr. Summer E. Darling, Hardwick, has been elected a member of the state tuberculosis commission, vice Dr. Lorenzo W. Hubbard, Lyndon, resigned.

New State Board.—The State Board of Medical Registration created by act of the legislature last year, and consisting of Drs. W. Scott, Nay, Underhill and F. H. Godfrey, Chelsea, each for six years; Drs. Elroy B. Whitaker, Barre, and J. Sutcliffe Hill, Bellows Falls, each for four years, and Drs. Sam Sparhawk, Burlington, Henry Janes, Waterbury, and A. E. Parlin, Barton's Landing, each for two years, met January 10 and organized, electing Dr. Janes chairman, Dr. Nay secretary, and Dr. Whitaker treasurer.

Care of Eyes and Ears of School Children.—A bill has been passed by the legislature, to take effect July 1, providing for the better care of the health of pupils in public schools, which provides:

> The State Board of Health and the Superintendent of Education shall prepare suitable test cards, blanks, record books, etc., to be used in testing the sight and hearing of pupils in public schools and necessary instructions for their use; and the Superintendent of Education shall furnish the same, free of expense, to every school in the state. The superintendent, principal or teacher in every school, during September in each year, shall test the sight and hearing of all pupils under his charge and keep a record of such examinations according to the instructions furnished; and shall notify in writing the parent or guardian of every pupil who shall be found to have any defect of vision or hearing or disease of eyes or ears, with a brief statement of such defect or disease; and shall make a written report of all such examinations to the Superintendent of Education as he may require.
>
> The State Auditor is directed to draw his order on the State Treasurer for such sums and at such times as the Superintendent of Education, with the approval of the State Board of Health, may require to carry out the provisions of this act. The total expense under this act shall not exceed $600 in any biennial term.

GENERAL.

Annual Conference of the Gulf States Quarantine Boards.—The annual conference of the Gulf States Quarantine Boards, for the regulation of quarantine matters, will be held in Mobile early in March.

The Samuel D. Gross Prize, of the Philadelphia Academy of Surgery for 1905, amounting to $1,200, has been awarded to Dr. James Homer Wright, Boston, for his essay, "The Biology of the Micro-organism of Actinomycosis."

Sanitarium for Lepers.—Senator Crane of Massachusetts introduced a bill in the senate, appropriating $250,000 for the establishment of an institution for the segregation of lepers, and prevent the spread of leprosy in the United States. The bill provides that the institution shall be located on some abandoned military reservation or other suitable site owned by the United States. The house committee on interstate commerce also considered two bills regarding the care of lepers. One provides for the establishment of a sanitarium in this country, to which may be sent all lepers in the United States, and another appropriates $150,000, to be used in Hawaii for the scientific study of the disease.

Panama Health Conditions.—In a cablegram to the War Department Gov. Davis of Panama gives the following summary of Isthmus conditions: In the families of the Americans employed on the Isthmus, only three cases of yellow fever have occurred, and one death. Of the employes hired on the Isthmus five have had yellow fever and one has died. Among the Americans not employed on the Isthmus, including those of the cruiser Boston, there have been nine cases of yellow fever

and five deaths. The total number of cases originating on the Isthmus is thirty-two, of which nine have proved fatal. Six cases are now convalescing. Since the American occupation, the dispatch says, two cases of smallpox have been reported, but none has originated there. There is no typhoid or plague. Of the 4,000 employes only 3 per cent. are ill of any disease. Governor Davis says that the sanitation of Panama is progressing as efficiently as in any city of the United States.

CANADA.

The "Canadian Nurse" is a new publication shortly to be issued from Toronto.

The Peterboro, Ontario, Sanitarium Association was formed, February 9, to erect a sanitarium.

Personal.—Dr. A. E. Douglas, Hunter River, Prince Edward Island, has been chosen speaker of the Prince Edward Island legislature.——Dr. J. M. Lefevre, Vancouver, B.C., has returned to Canada from England.

Closer Relations Wanted at McGill.—The faculty of medicine of McGill University, in the interests of medical education in Montreal, has asked for full union with the university. The board of governors welcomed the proposal, and will arrange for a special meeting to consider details.

Toronto's Health During January.—The following cases of contagious diseases were reported in Toronto during January, 1905, as compared with January, 1904: Diphtheria, 187, 1904, 146; scarlet fever, 48, 1904, 37; typhoid fever, 14, 1904, 2. The births, marriages and deaths during January were 412, 293 and 333 respectively. The deaths under five years were 109, over 70, 54.

The Lepers of Canada.—Dr. Smith, medical superintendent of the Leper Hospital at Tracadie, N. B., has made his annual report to the federal parliament. There are now fifteen residents in the institution, ten males and five females, the youngest patient being ten years and the oldest 62 years. The use of Chaulmoogra oil was introduced two years ago with some success. Dr. Smith, after careful investigation, is convinced that leprosy is communicable through contagion.

Searching a Maternity Hospital.—An unheard of proceeding took place recently in Montreal, when a deputy high constable and a special constable obtained admission to the Montreal Maternity Hospital, and in spite of assurances on the part of physicians and nurses that the individual they sought was not there, wantonly searched every bed in the institution, both private and public, but without locating the person sought. The legal adviser of the hospital has been instructed to take proceedings against these two men.

To Establish British Columbia Board of Health.—An important conference in Vancouver, February 3, will probably result in the establishment of a properly constituted board of health for the province, as suggested by Dr. Brydone-Jack of Vancouver, the members of which will be medical men. At present the arrangements provide a health officer who consults with the provincial cabinet. It is announced that a thorough revision of the health regulations of the province may take place at the present meeting of the legislature.

Canadian Physicians and the British Medical Act.—General Laurie, member of the British house of commons, and formerly a member of the Canadian house of commons, is the author of a bill, which seeks to amend the British Medical Act of 1858. This measure has been before the English house of commons both in 1903 and 1904, in the latter year being supported by two representatives of the general medical council, Sir Walter Foster and Sir John Tuke. This amendment to the medical act seeks to remove those disabilities under which colonially trained physicians and surgeons lie, in that they are not permitted to serve as such in either the British army or navy. The matter is before the local medical societies of Canada, and resolutions are being forwarded to Lieutenant-General Laurie, so that when he next brings the measure before the house of commons he will have evidence to prove that Canadians desire such disabilities removed.

Ontario Board of Health.—At the regular quarterly meeting of the Ontario Board of Health in Toronto recently, the chairman, Dr. E. E. Kitchen of St. George, presented his annual report. The past year has been a satisfactory one, so far as the health of the province was concerned. There was a great difference in the deaths from scarlet fever over those of 1903, when 529 died from that disease alone. In 1904, the deaths from scarlet fever numbered 129. The deaths from diphtheria remained about the same, viz., 438, while the deaths from typhoid fever ran from 298 in 1903 to 397 in 1904. The deaths from tuberculosis also show an increase from 2,072 in 1903 to 2,168 in 1904. Dr. Amyot, the bacteriologist of the board, in presenting his report, stated that during the past year a number of patent medicines had been subjected to examination, in which a large amount of alcohol had been found. The secretary reported the number of deaths for 1904 as 25,415, a rate of 12.8 per 1,000.

FOREIGN.

Medal for Ramon y Cajal.—The Prussian Academy of Sciences has presented the Helmholtz medal this year to Ramon y Cajal of Madrid.

New Hospital in City of Mexico.—President Diaz opened the new General Hospital in the City of Mexico February 5. The construction of the hospital was commenced several years ago, and has cost many thousand dollars. It consists of many pavilions, because many of the hospitals in the city will be merged in this new hospital.

Hospital Administration at Berlin.—The new Virchow hospital at Berlin is to have a similar administrative body as the three other city hospitals there. This body consists of the chief of the surgical department, the chief of the internal medicine department, and an administrative director. This triple head is found the best working organization for the management of these institutions.

Cancer Research in Baden.—A number of physicians and surgeons gathered, January 21, at Heidelberg to organize a cancer research committee. The minister of the interior for Baden was chairman of the meeting and Prof. V. Czerny of Heidelberg was appointed chairman of the committee. A collective inquiry is to be undertaken throughout Baden, and a number of special questions are to be investigated.

Patent Medicine Laws in Venezuela.—It is reported that the Venezuelan government has adopted regulations whereby all medicines not duly authorized and approved by the board of physicians shall be excluded from the republic. Large quantities of patent medicines have been annually exported from the United States and from other countries to Venezuela, and need of some action to protect the people has been imperative.

New Hospital in Pekin.—A hospital has just been completed by the Presbyterian Board of Foreign Missions in Pekin, to replace the one destroyed by the Boxers several years ago. The good feeling that the native merchants have for the hospital was made evident by the fact that they were present in large numbers at the dedication exercises, at which the United States Minister, Mr. Conger, made one of the addresses. There were also present a number of Chinese officials.

Reform in Exhibitions at Medical and Surgical Congresses.—The German manufacturers of surgical appliances held a conference at Berlin recently, in which resolutions were adopted urging that those in charge of exhibitions connected with medical and surgical congresses should be more discriminating in accepting exhibits. The committee passing on the exhibits should contain at least one technical expert, and the exhibitions should be held less often—once in three years was considered often enough.

Vital Statistics in Italy.—The *Riforma Medica* states that the number of deaths in Italy from scarlet fever has dropped from 14,000 in 1887 to 1,500 in 1900; from 28,000 to less than 6,000 deaths from diphtheria; from 24,000 to about 9,000 from measles; from 28,000 to 15,000 from typhoid fever, and from 16,000 to 316 from smallpox. On the other hand, the mortality from pulmonary tuberculosis has increased from 32,000 to 40,000, and that from pneumonia has risen from 63,701 in 1887 to 76,101 in 1900.

Tuberculosis Winter Day-Resort.—A winter day-sanatorium for the treatment of tuberculosis has been opened at Eichkamp, in the Grünwald, the great pine forest near Berlin. The *British Medical Journal* states that eight such institutions are open to the Berlin working classes during the summer, but this is the first that has been fitted up for the reception of patients in winter. In acknowledgment of the unwearying efforts in behalf of the sanatorium movement of Frau Studt, wife of the Prussian minister for home affairs, this institution is to bear the name "Luise Studt Erholungstätte."

Dispensary Abuses at Berlin.—The Prussian budget for this year contains an appropriation of about $52,400 solely to make up the deficit at von Bergmann's surgical policlinic from the past year. The fame of the operator attracts crowds to this clinic, many of them probably able to pay for surgical at-

tendance. The authorities are taking steps to prevent this overcrowding of the clinic, which is far beyond what is needed for teaching purposes. They are devising means to sift out those able to pay for surgical work, and to make the clinic more self-supporting.

Information Bureau at Berlin.—An office has been opened on the ground floor of the university building at Berlin, near the main entrance, to serve as an information bureau for scientific educational matters. Students and others can obtain all possible information in regard to courses, lectures, prices, etc., and every possible information will be afforded for the prosecution of special scientific research by foreigners. Questions sent by mail will be answered. The office is to be open mornings and evenings, except during vacations, when the morning hours only will be retained. The official name of the bureau is the "Akademische Auskunftsstelle." The similar information bureau at Paris has fully established its usefulness during the year or so it has been in operation. It has been previously described in these columns.

School Inspector Dismissed.—Dr. Goldfeld has been medical inspector of the schools at Schöneberg near Berlin, and last July he read an article before the Woman's Temperance Union of the town on the use of liquor by the school children. His article was based on personal investigations, and it was published in several temperance journals, and extracts from it were given in some of the daily papers at home and abroad. The citizens association (Bürgerverein) became enraged at this publicity, bringing scandal on the town, and the city authorities were petitioned to discharge Dr. Goldfeld. In collecting his statistics he was said to have overstepped his line of duty as medical school inspector. The mayor (Stadtmagistrat) summarily dismissed Dr. Goldfeld. The city council passed a unanimous resolution asking that the physician be reinstated. The mayor has refused to do this. Physicians throughout Germany are watching with great interest the outcome of this serious disagreement between the municipal authorities over the medical school inspector.

Fund for Original Research in Australia.—Mr. David Syme of Melbourne, has given $15,000 to found a prize for the encouragement of original research. The *Australasian Medical Gazette* states that the council of the University of Melbourne has decided on the regulations for awarding the prize, which is to consist of $500 and a medal. It will be open to competition in March, 1906, and similarly in each succeeding year. Any person, resident in Australia for not less than five years, is eligible, except professors in Australian universities or heads of scientific departments under any Australian government. The prize is to be awarded to the candidate who, in the opinion of the examiners, submits the best thesis based on original work in one or other of the following branches of science: Biology, chemistry, geology or natural philosophy. Other things being equal, preference will be given to original research connected with the material and industrial development of Australia. If a thesis submitted as the joint work of two or more authors be awarded the prize, it will be equally divided between such authors.

The Berne Serum Institute and the Typhoid Epidemic.—A letter from Switzerland in the *Deutsche med. Wochft.* of January 12, relates particulars in regard to the last typhoid epidemic at Berne which had a tendency to discredit the medical profession in the eyes of the laity. The serum institute there, which is supported by the state, has been in the habit of sending to the slaughter-house the animals for which it had no further use. It happened and the public learned that the meat of a horse which had been inoculated with typhoid bacilli was sold in the market two or three days before the outbreak of the epidemic. Notwithstanding that the incubation period and other conditions did not harmonize with the facts observed, the public at once ascribed the epidemic to this meat, and the city authorities endorsed this assumption to divert attention from the waterworks. The state has now forbidden the sale of animals from the serum institute, but the ghost of that typhoid-inoculated horse, butchered and eaten, is invoked now by the irregulars on every possible occasion. The writer adds that considerable harm from this incident might have been avoided if the local physicians had refrained from disparaging criticism and sought to shield their confrères in the institute instead of joining in the cry against them.

Scarcity of Antitoxin in Buenos Ayres.—Dr. J. Penna is director of the isolation hospital at Buenos Ayres, and he expresses concern at the way in which antidiphtheria serum is being heralded and pushed there as a remedy for tuberculosis. He comments on the great harm that results when any remedy is advertised as a cure for tuberculosis. The poor consumptives, seeing the display ads of the pretended cure, waste their last and precious means in buying the advertised medicine, instead of keeping the money to make them more comfortable and to buy them nourishing food. He exclaims: "Is it not the height of cruelty thus to delude these unfortunates!" The present craze for antidiphtheria serum as a remedy for tuberculosis has exhausted the supply, and this condemns children with diphtheria to do without this potent remedy in the one disease for which it has proved its efficacy. He mentions specific instances, among them that of the child of very wealthy parents brought to the isolation hospital the day before as no antitoxin was to be obtained in town at any price, and it was known that there was still a small supply in this otherwise dreaded hospital. He adds that diphtheria is endemic in Buenos Ayres, and epidemics of it are not infrequent. While consumptives are trying the antitoxin, children are liable to be dying for want of it.

LONDON LETTER.

The Health of London in 1903.

The annual report of Sir Shirely Murphy, the health officer of the London County Council, for 1903, has just been published, and is highly satisfactory. As usual, it furnishes interesting figures. It is estimated that another 34,000 persons were added to the population of London, making a total of 4,613,812. The marriage rate was 17.4 per 1,000, a slight decrease since 1902, but more than in 1894, when it was 17.0, the lowest on record. The birth rate still continues to decline, and was only 28.4, the lowest on record. The death rate was 15.2, also the lowest on record. This remarkably low rate was not peculiar to London, and was partly due to favorable meteorologic conditions. The corrected death rate (16.5) is lower than that of any of the large towns except Bristol, which was 14.7, and compares favorably with foreign capitals, which show the following rates: Paris, 17.9; New York, 18.2; Rome, 19.8, and St. Petersburg, 23.8. By life table methods the health officer calculates that during 1903, compared with the decennium 1891 to 1900, there was a saving of 18,742 lives, representing a gain of 665,333 years of "life capital." The infant mortality was 130, one of the lowest recorded, and also lower than that of any other large town in England, except Bristol. Turning to the chief causes of death the greatest diminution was in diseases of the respiratory, nervous, and circulatory systems, and in diphtheria and phthisis. There was an increase in the deaths due to cancer, suicide, and diseases of the urinary system. Cancer was given as the cause of 4,695 deaths, the annual average of the preceding 10 years being 3,964. The rate per 1,000 living rose to 1.02.

Munificent Gift to the Royal College of Surgeons.

Mrs. Macloghlin, the widow of a deceased physician, has, in accordance with the intention of her husband, proposed to give $50,000 to the Royal College of Surgeons for the purpose of endowing scholarships in his memory. They are intended to assist young students in need of financial aid to proceed with their studies. The council of the college have gratefully accepted the offer and agreed to administer the trust which has been arranged by the presidents and vice-presidents in consultation with Mrs. Macloghlin.

The Dangers of Flannelette.

From time to time public attention is attracted to the dangers of flannelette by inquests on the bodies of persons who have been burnt in consequence of flannelette garments catching fire. The popularity of this material, however, does not appear to have been affected nor any means taken to combat the danger. In an editorial on the subject the *Lancet* says that the days of inflammable flannelette should be numbered. The death-rate roll of children who have been injured by its ignition is appalling. It catches fire and burns as easily as alcohol. The following is an example: A boy, aged 2 years, was left to play in a room while his mother was absent. He was clad in a flannelette nightshirt. The mother heard screams and returned to find the boy in flames. He was terribly burned, and died within twenty-four hours. The British government has requested coroners to make returns of these cases. One coroner states that last year he held no less than seventy-three inquests on children burned to death, a large proportion of the deaths being due to flannelette igniting. The *Lancet* very pertinently asks: "Why wait for more evidence; are not the returns sufficient?"

Correspondence.

Card Indexing for Preserving Useful Medical Information.

PHILADELPHIA, Feb. 11, 1905.

To the Editor:—Among the difficulties which beset the physician is to preserve useful information on various subjects in systematic shape for ready reference. The best method of doing this, coming steadily into vogue, is the card index. Much of useful data is offered in the form of advertisements, prospectuses, book notices, booklets, leaflets, circulars or cards of irregular size, making it utterly impossible to arrange them comfortably, hence to preserve them in such a fashion that they can be readily consulted.

I made the suggestion long ago to the drug manufacturers that if they desired, or expected, us to bear in our minds descriptions of their preparations, some of which contain much merit, they should make it practicable by giving us printed information, much or little, on cards of the ordinary size used in the card indexes. This is the best way.

Thus a card index could be kept especially for "therapeutic suggestions," notes on treatment gleaned from divers sources. Some of the drug houses have adopted this suggestion, and are sending out cards containing a list of their special preparations which can be conveniently filed. Two sides of a card provide much space.

If the proprietors of the various sanitaria designed for rest or recuperation or special treatment would adopt the card index system in addition to their regular circulars, these would be put on file alphabetically under the heading "Sanitaria" or health resort, coastwise or mountain hotels, springs, spas, etc., and would thus be promptly called to the mind of the physician when groping vaguely to find a suitable place to send a patient for rest, recreation or special treatment. The same card index plan would serve publishers of books.

The card index system for keeping notes of cases is recognized to be the best which has so far been offered, likewise for the keeping of accounts and other matters requiring useful record.

These are now offered in such cheap convenient forms that there should be no difficulty in securing and keeping, and the possibility is thus made easy to systematize references so that various other data could thus be preserved in such a fashion that no important facts need be far distant from our daily work.

A single drawer in an ordinary desk could easily contain two such card indexes, at least in the forward end, and thus an ordinary desk of three or four drawers could be well equipped with six or eight card indexes.

There is too much labor in taking a blank card and writing out the data, but if cards were supplied suitably printed and black lettered which could slip in the proper alphabetical order, there would follow a great economy of time and trouble and attention, and an immense saving of useful information.

J. MADISON TAYLOR, M.D.

Queries and Minor Notes.

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish his name will be faithfully observed.

VALUE OF ALBUMOSURIA AS A MEANS OF DIAGNOSIS.

TRENTON, N. J., Jan. 10, 1905.

To the Editor:—What dependence is to be placed on albumosuria as a means of diagnosticating concealed pus in either of the great cavities, or in deep-seated muscular structures of the body? Please give the most reliable and accurate test, or tests, for this substance in the urine. C. H. GORDON, M.D.

ANSWER.—By albumosuria is meant the appearance in the urine of those higher soluble cleavage products of the albumins which, though they are not coagulable, can be removed from solution by "out-salting"—the so-called "albumoses." Physiologic chemists distinguish two classes of albumoses, the primary albumoses (protalbumose and heteroalbumose), which stand very close to the albumins proper, and the secondary or deuteroalbumoses which stand close to the peptones. The albumoses which occur in the urine appear to be chiefly deuteroalbumoses. The condition so often described as "peptonuria" is in the majority of cases really "albumosuria." The amounts of albumose in the urine vary from 0.06 to 0.6 per cent., the larger amount occurring usually in cases of empyema or croupous pneumonia. Albumoses occur in the urine in various pathologic circumstances. The so-called "enterogenous albumosuria" is met with in cases of ulcer of the stomach, ulceration of the intestine and carcinoma of the stomach. The so-called "pyogenous albumosuria" is encountered in various suppurative processes—large abscesses, empyema, croupous pneumonia, mixed infections with tuberculosis, etc. The so-called "endogenous albumosuria" is met with where body-tissues are breaking down, e. g., in phosphorus poisoning, in acute yellow atrophy of the liver, in carcinoma of the liver, etc. Beside, deuteroalbumoses have been demonstrated in the urine in many febrile processes, e. g., pneumonia, scarlet fever, influenza, diphtheria, measles, typhoid fever and tuberculosis. In order to be absolutely sure of the presence or absence of albumoses in the urine, especially of small amounts, it is necessary to remove any albumin, globulin, mucin or nucleoalbumin that may be present. But, roughly, for clinical purposes, the following preliminary tests may be made: (1) Heating acidified urine. Heat five or ten c.c. of urine to which a trace of acetic acid has been added in a test tube to boiling and filter hot. If albumoses are present the filtrate becomes turbid, and this turbidity will increase on the addition of ammonium sulphate. When the filtrate is cooled, add some caustic potash and one drop of copper sulphate solution (5 per cent.); if albumoses are present the red dish-violet biuret reaction is obtained. (2) Ferrocyanid of potassium and acetic acid test. To 10 c.c. of urine add 5 drops acetic acid; should a precipitate form (urates, mucin, etc.), filter and add from one to three drops of a 5 per cent. solution of ferrocyanid of potassium. If a precipitate forms, which vanishes on heating to reappear on cooling, the presence of albumoses is demonstrated. A safer clinical test is that of A. Jolles (Pharmaceutisches Centralblatt, vol. xxxvii, 1896, p. 432). About 10 c.c. of urine are thoroughly shaken with a little animal charcoal, the filtrate mixed with two drops of solution of lead acetate and filtered again. If albumin is present, it should be first removed by adding a few drops of a 10 per cent. solution of acetic acid, boiling, neutralizing with 10 per cent. NaOH, shaking with animal charcoal, filtering, precipitating with lead acetate and filtering again. The filtrate is now free from urobilin and almost colorless; apply the biuret reaction. Of the strictly scientific methods that of F. Hofmeister is as good as any. To half a liter of urine are added 10 c.c. of a concentrated solution of sodium acetate, and then, drop by drop, a concentrated solution of ferric chlorid until the fluid remains permanently red. If the urine is strongly acid, it is nearly neutralized, then boiled and, after cooling, filtered. The filtrate must contain no iron or albumin. To this filtrate is now added one-tenth of its volume of concentrated hydrochloric acid and then an acid solution of phosphotungstic acid (200 grams phosphotungstate of soda and 120 grams phosphate of soda dissolved in 1,000 c.c. water and 100 c.c. concentrated sulphuric acid added) as long as it continues to throw down a precipitate. Collect the precipitate on a filter, wash it with a 5 per cent. solution of sulphuric acid, rub it up while still moist with solid barium hydrate, add a little water, warm for a short time until the original greenish color is changed to pure yellow and then filter the mixture. Free the filtrate from barium by means of dilute sulphuric acid, concentrate the filtrate, make the solution alkaline, and add cautiously, drop by drop, shaking constantly, some diluted 1 per cent. solution of copper sulphate; if albumoses be present, the biuret-reaction is obtained, first a rose color and later a violet tint. If the urine contains mucin it should be first removed by the addition of a small amount of lead-acetate solution. The so-called "Bence-Jones body" is often spoken of as an albumose, but more recent studies have proved that it is a native albumin. The best description of it is to be found in the article by Magnus-Levy (*Ztschr. f. physiol. Chem.*, vol. xxx, 1900, p. 200). It occurs in the urine in cases of osteomalacia, often in very large quantities, sometimes as much as 6.7 per cent. If acid urine containing the Bence-Jones body be heated with a little concentrated solution of common salt to 50 degrees C., the urine first turns milky and at 60 degrees gives a sticky (not flocculent) precipitate, which adheres to the walls of the test tube or swims on the surface of the fluid. On heating further, the turbidity and precipitate disappear and the solution becomes clear; on cooling, the albumin body again separates out, and under the microscope appears in the form of spheres, occasionally in the form of crystals. That it is really an albumin (and not an albumose) is shown by the facts (1) that when pure it can be completely coagulated; (2) that with alcohol it can be denaturalized; (3) that strong acids or alkalies convert it into acid albumin or alkali

albuminate, and (4) that on pepsin-digestion it yields the ordinary albumoses and peptone (with the exception of heteroalbumose). The diagnostic value of albumosuria is very slight except in conjunction with other symptoms. In case there were a deep-seated abscess anywhere, the leucocytosis and the "choppy" temperature chart would be far more decisive symptoms than the albumosuria. The presence of the Bence-Jones albumin is believed to be highly characteristic of osteomalacia.

A BOOK OF PORTRAITS OF PHYSICIANS.

In THE JOURNAL, July 2, 1904, page 43, we mentioned the fact that a number of readers had asked us for information concerning a circular letter which had been sent to those who had registered at the Atlantic City session of the American Medical Association, asking for photographs and subscriptions for a book of portraits of those in attendance at the session. We suggested caution in dealing with the firm, and we closed with the following comment: "We also call attention to the printed order blank which is to be signed ordering the engraving made. No charge for this is named, and there is a possibility of the charge being any amount the company wishes." Here the matter rested until recently, when, coming across some of the circulars which had been laid away for future reference, we wondered whether or not the book had been issued, and wrote to the company asking about it. We received no reply, but during the next few days two subscribers wrote us for information concerning the company, having paid for the book and never having received it. The statement of one of the two carries out the prediction which we made in the last sentence of our remark, July 2, which we have quoted above. He received a bill of $11 for the making of the engraving; this was from a separate company, and the order blank which was signed by the subscriber gives the company a perfectly legal right to collect the charge. On receipt of these letters we wrote to our representative in New York City, and he has reported absolute failure to get into communication with either the portrait company or the engraving company. They did not reply to his letters and could not be definitely located. The portrait company had moved to a new address, but on calling at the new address our representative found no one connected with the firm and no equipment was apparent, but he was told that mail would be forwarded. The result of his search for the engraving company was similar. The person who stated that mail would be forwarded also stated that the book referred to had been issued, but, because certain men had objected to receiving it because some of the prominent men of the Association had not been included, another edition was expected soon with those men included. If any one has received the book we would appreciate being informed to that effect.

SUGGESTIVE THERAPEUTICS.

L. E. H. asks: "What are the best works on suggestion, its practice, etc.? Is there a place of good standing where this branch of study is taught?"

H. J. N. asks for the address of any school which gives instruction in hypnotic suggestion, with the cost and time needed for the course. "If no such school exists, please give names of authorized works on the subject."

ANSWER.—The question of suggestion and its practice has been exhaustively reviewed, as far as current medical literature is concerned, in the "Practical Medicine Series of Year Books, Chicago, Vol. VIII, 1903, and Vol. VIII, 1904. Works of value on the subject are: "Influence of the Mind on the Body in Health and Disease," Daniel Hack Tuke, M.D., 1884. "Suggestive Therapeutics," H. Bernheim, M.D., 1889. "Hypnotism and Suggestion," by Osgood Mason, M.D., 1901. "The Force of Mind or the Mental Factor in Medicine," A. T. Schofield, 1902. "Psychotherapy in Practice of Medicine and Surgery," S. Leavitt, M.D., 1903, and a very excellent article by F. X. Dercum, M.D., in Vol. VIII of "System of Physiological Therapeutics." We know of no place in good standing where this line of study is specially taught, but more or less attention is usually given to it by the professors of therapeutics.

DEADBEAT LIST.

GALESBURG, ILL., Feb. 17, 1905.

To the Editor:—Any information or advice on the best method of procedure in forming a physicians' "delinquent list" will be gratefully received by the undersigned. Members of the Knox County Medical Society feel that there are many professional deadbeats who are imposing on them, and what we want is some plan which will be legal, not cumbersome, and which at the same time will protect us from the undeserving.

WILLIAM H. MALEY.

SCHOTT TREATMENT OF CHRONIC HEART DISEASE.

C. W. A. can obtain a copy of Dr. Bezly Thorne's book, "The Schott Methods of Treatment of Chronic Diseases of the Heart" (referred to by Dr. Anders in THE JOURNAL, Jan. 14, 1905), from Blakiston's Son & Co., Philadelphia. The price is $2.00.

Marriages.

AUGUSTUS KORNDOERFER, M.D., to Miss Mary M. Jones, both of Philadelphia, February 1.

WILLIAM E. DOWNING, M.D., Suison, Cal., to Miss Baugh of San Francisco, January 31.

RUSSELL C. MCNEILL, M.D., to Miss Anna Blair, both of Belle enter, Ohio, January 25.

CLYDE J. SAYLOR, M.D., Womelsdorf, Pa., to Miss Rena A. Miller of Lebanon, Pa., January 31.

BOYD W. SCHAFFNER, M.D., Templeton, Pa., to Miss Grace Fearl of Johnstown, Pa., January 24.

CHARLES THADDEUS BELL, M.D., to Miss Esther Hampton Brock, both of New York City, January 30.

JOSEPH H. HATHAWAY, M.D., Rochester, N. Y., to Miss Ethel H. S. Baird of Woodstock, N. B., January 25.

R. MARVIN WINN, M.D., Saverton, Mo., to Miss Rebecca Jones of Ashburn, Mo., at Louisiana, Mo., February 1.

BELLE F. ORR, M.D., Belton, Mo., and ROBERT A. WILLIAMS, M.D., Washington, Kan., at Kansas City, Mo., January 26.

Deaths.

Michael O'Hara, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1852, a member of the American Medical Association, died at his home in Philadelphia, January 31, aged 72. He served as assistant surgeon in the United States Navy, and as surgeon of the One Hundred and Fiftieth Pennsylvania Volunteer Infantry during the Civil War; was attending physician for many years to St. Mary's Hospital and the House of the Good Shepherd; from 1894 to 1898 he was director of St. Agnes' Hospital. He served as vice-president and librarian of the Philadelphia County Medical Society, and in 1876 he was a delegate to the International Medical Congress.

Freeman Dwight Case, M.D. Cleveland Medical College, Medical Department of Western Reserve College, 1870, a member of the American Medical Association, a member of the Ashtabula City council for several terms, and an organizer and member of the executive board of the Ashtabula General Hospital; a member of the Ashtabula County Medical Association, died at his home in Ashtabula, February 7, from septicemia following a fall in December last, in which he injured his knee and leg, aged 58.

T. H. Brenneman, M.D. University of Virginia Medical Department, Charlottesville, 1900, house surgeon of the Princess Anne Hotel, Virginia Beach, Va., a member of the local and state medical societies, died from septicemia following an operation wound, January 28, at Sarah Leigh Hospital, Norfolk, Va., after an illness of six weeks, aged 34.

Mary Alice Brownell, M.D. University of Michigan Department of Medicine and Surgery, Ann Arbor, 1885, a member of the American Medical Association; for nine years a physician in the State Custodial Asylum, Newark, N. Y., and afterward a practitioner in that village, died in the Rochester City Hospital, January 30, after an operation, aged 49.

George K. Rodebaugh, M.D. Jefferson Medical College, Philadelphia, 1901, house physician of the Park View Sanitarium, Columbus, Ohio, and for a time professor of practice of medicine in the Ohio Medical University, died at his home in Columbus, February 6, from nephritis, after an illness of more than a year, aged 27.

Frederick P. Tuxbury, M.D. Dartmouth Medical School, Hanover, N. H., 1899, died at his home in Denver, Colo., February 5, from nephritis, after an illness of ten days, aged 37. At a special meeting of the Denver City and County Medical Society, February 7, resolutions of regret and respect were adopted.

William H. Risk, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1866, president of the Summit (N. J.) Board of Health for two years, and a member of the county and state medical societies, died at his home in summit, February 7, after a long illness, aged 62.

Clarence W. DeLannoy, M.D. Jefferson Medical College, Philadelphia, 1881, chief surgeon of Telluride City Hospital, and health commissioner of the city, died at his home in Tel-

luride, Colo., February 7, from septicemia due to an operation wound, after an illness of four months, aged 50.

Humphrey B. Anderson, M.D. Detroit (Mich.) College of Medicine, 1888, a member of the American Medical Association; a charter member and at the time of his death president of the Grand Traverse Medical Association, died at his home in Traverse City, Mich., February 8, aged 46.

Richard G. Lightle, M.D. Kentucky School of Medicine, Louisville, 1898, under indictment for defrauding life insurance companies of $21,000, burning a barn, and robbing a grave, died at the home of his mother in Searcy, Ark., February 7, from pneumonia.

William S. Wheelwright, M.D. Rush Medical College, Chicago, 1878, of Belleville, Wis., suffered a cerebral hemorrhage while making a professional call at New Glarus, and died four days later, February 5, aged about 60.

John H. McBrayer, M.D. Atlanta (Ga.) Medical College, 1882, died at his home in Shelby, N. C., January 30, from nephritis, after an illness of several years, aged about 60. He served as postmaster of Shelby for two terms.

Addison R. Tarkington, M.D. Memphis (Tenn.) Hospital Medical College, 1891, of Hot Springs, Ark., died at Benton, Ark., while on his way to San Antonio, Texas, for his health, from an affection of the throat.

Emmett A. Sprowls, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1898, formerly a practitioner of Claysville and West Alexander, Pa., died at his home in Elgin, Ill., February 1, aged 30.

Howard Edgar Bowman, M.D. State University of Iowa College of Medicine, Iowa City, 1904, died at his home in Hills, Iowa, February 1, from pneumonia, after an illness of ten days, aged 39.

Thomas Hill Ellis, M.D. Medical College of South Carolina, Charleston, 1894, died at his home in Hartsville, S. C., Dec. 26, 1904, from typhoid fever, after an illness of three weeks, aged 33.

James McGregor Stevenson, M.D. McGill University Medical Department, Montreal, 1856, died at his home in Denfield, Ont., January 31, from pneumonia, after an illness of two days, aged 67.

James David Hoyl, M.D. Harvard University Medical School, Boston, 1857, died at his home in Fort Valley, Ga., Dec. 26, 1904, from chronic bronchitis, after an illness of one year, aged 70.

Frank H. Sims, M.D. Atlanta (Ga.) Medical College, 1883, of Atlanta, Ga., died at the Elkin-Cooper Sanitarium in that city, February 5, from pneumonia, after an illness of a few days, aged 42.

Francis Norton Phelan, M.D. University of Wooster Medical Department, Cleveland, 1884, died at his home in Duluth, Minn., February 11, from pneumonia, after an illness of a few days.

Sidney M. Abbay, M.D. Tulane University of Louisiana Medical Department, New Orleans, 1866, of Centerville, La., died at the sanitarium in Franklin, La., February 6, aged 67.

John B. McEwen, M.D. University of Nashville Medical Department, 1861, thrice treasurer of Lafayette County, Miss., died at his home in Oxford, February 6, from pneumonia.

E. M. Schelde, M.D. College of Medicine and Surgery of the University of Minnesota, Minneapolis, 1904, died at Blooming Prairie, Minn., from consumption, January 25, aged 36.

Albert O. Mundhenk, M.D. Medical College of Ohio, Cincinnati, 1903, of West Alexandria, Ohio, died in Denver, February 6, from tuberculosis, after an illness of a year, aged 30.

Allen F. Hagadorn, M.D. University of Michigan Department of Medicine and Surgery, Ann Arbor, 1875, died at his home in West Bay City, Mich., February 8, from apoplexy.

Edson H. Young, M.D. University of Vermont Medical Department, Burlington, 1884, died at his home in Buffalo, N. Y., February 5, after an illness of one week, aged 44.

Edward Dudley Arnold, M.D. Rush Medical College, Chicago, 1878, died at his home in Omaha, February 5, from pneumonia, after an illness of six days, aged 46.

Wooster Beach Preston, M.D. Cincinnati, 1867, died at his home in Dansville, N. Y., February 4, after an illness of more than a year, from Bright's disease, aged 60.

George W. Ebrite, M.D. Dartmouth Medical School, Hanover, N. H., 1868, died suddenly at his home near Gainesville, Mo., January 14, from angina pectoris, aged 64.

Jacob A. Gilder, M.D. New Orleans School of Medicine, 1868, a pioneer of Beaumont, Texas, died in that city, February 4, after an illness of six months, aged 67.

Moses M. Curtis, M.D., certificate, died at his home in Miles Station, Texas, January 10, from the rupture of an aneurism, after an illness of two weeks, aged 63.

Augusta Smith, M.D. Chicago, 1883, was struck by an electric car near her home in St. Louis, February 4, and died a few hours later from her injuries, aged 73.

James Madison, M.D. State Board of Health, 1878, a pioneer of Clark County, Ill., died at his home near Marshall, February 2, from senile debility, aged 83.

James A. Freer, M.D. New York, 1885, of Washington, D. C., was found dead in a country inn near that city, February 5, from morphin poisoning, aged 46.

Alfred Lindsay Shapleigh, M.D. Harvard University Medical School, Boston, 1894, a medical missionary in China, died in Shanghai, February 3, aged 35.

Jacob L. Gebhart, M.D. University of Heidelberg, Germany, died at his home in Hot Springs, Ark., February 3, from senile debility, aged more than 80.

Joseph N. Hetzler, M.D. Medical College of Ohio, Cincinnati, 1875, died at his home in Celina, Ohio, from cerebral hemorrhage, February 6, aged 76.

Albert G. Anthony, M.D. Ohio, 1880, died from the effects of carbolic acid taken with suicidal intent, at a hotel in Syracuse, N. Y., February 1, aged 45.

John Schmidt, M.D. Marion Sims College of Medicine, St. Louis, 1898, died at his home in St. Louis, February 6, after a lingering illness, aged 29.

George W. Yokum, M.D. Jefferson Medical College, Philadelphia, 1854, died at his home in Beverly, W. Va., January 30, after a protracted illness.

Don Quincy Sims, M.D. 1850, of Joshua, Texas, died at Morgan, Texas, December 17, from brain disease, after an illness of three months, aged 78.

Thomas J. Robinson, M.D. University of Louisville (Ky.) Medical Department, 1869, died at his home in Marianna, Ark., January 15, aged 63.

Samuel E. Thayer, M.D. University of Buffalo Medical Department, 1869, died at his home in Hamilton, Mass., February 5, aged 62.

Baxter Haynes, M.D. St. Louis College of Physicians and Surgeons, 1880, died at his home, Harricane, Ill., January 27, aged 77.

Patrick H. Kelly, M.D. Medical College of Ohio, Cincinnati, 1850, died at his home in Waterford, Ohio, February 6, aged 80.

Samuel R. Woods, M.D. St. Louis Medical College, 1867, died at his home in Clearwater, Fla., January 23, aged 75.

William D. Babcock, M.D. New York, 1885, of East Hampton, Conn., died in Florida, February 1, aged 57.

Benjamin F. Cory, M.D. Cincinnati, died at his home in Takoma Park, D. C., January 27, aged 85.

Royal R. Lacey, M.D. Cincinnati, 1878, died at his home in Carbondale, Ill., February 2, aged 68.

Book Notices.

TEXT-BOOK OF INSANITY BASED ON CLINICAL OBSERVATIONS, for Practitioners and Students of Medicine. By Dr. R. von Krafft-Ebing, late Professor of Psychiatry and Nervous Diseases in the University of Vienna. Authorized Translation from the Latest German Edition by Charles Gilbert Chaddock, M.D., Professor of Diseases of the Nervous System in the Marion-Sims-Beaumont College of Medicine, Medical Department of St. Louis University, St. Louis. Pp. xvi—638. Price, $4.00 net. Philadelphia: F. A. Davis Company. 1904.

Those who have had the rare pleasure of listening to Krafft-Ebing's remarkably clear exposition of psychiatric types and later have drawn from the clinical riches of his text-book will rejoice that readers of English are to be introduced to this great descriptive writer. For many years his work has been a standard text-book and nowhere are to be found better word pictures of the various symptom-groups of insanity. It is essentially clinical. Even the 230 pages on the "General Pathology and Therapy of Insanity" are practical, the matter evidently being the product of experience with

insane people. Krafft-Ebing has shown neither the analytic nor synthetic power of Kraepelin, but no writer has known better how to put the reader in the place of one who visits an asylum, sees the faces of the patients, observes their acts, hears their talk and then follows their course day by day. Indeed, there is very little of what an asylum physician may see and learn in years of active service that is omitted from this text-book. The amount of information contained in the six hundred and twenty-odd pages is astonishing. Notwithstanding the completeness of the work, it can not to-day fill the demands of the student of psychiatry. Live and serious questions as to the nature of certain forms of insanity have arisen; questions involving diagnosis, prognosis and treatment: questions not broached in the work before us. Notably the practical issues in connection with dementia præcox, so-called manic-depressive insanity and paranoia, not to mention Korssakow's psychosis, are entirely ignored. This being the case, it is to be regretted that the translator did not also assume the prerogative of editor and add some discussion of new matter brought into the psychiatric field by observers and writers other than the author. The translator has done his work well and has earned the gratitude of many.

NORMAL HISTOLOGY AND MICROSCOPICAL ANATOMY. By Jeremiah S. Ferguson, M.Sc., M.D., Instructor in Normal Histology, Cornell University Medical College, New York City. With 462 Illustrations in the Text, Many in Colors. Cloth. Pp. 738. Price, $5.00. New York and London: D. Appleton & Co. 1905.

This book appears to cover in a satisfactory manner the field it occupies. Perhaps more space, relatively speaking, than usual has been devoted to special organ systems, especially the nervous system. The illustrations are in general creditable. Figures 165 and 361 should be replaced by other and better ones in the next edition. There is a very limited chapter on technic which might as well have been omitted in view of the various authoritative books on histologic technic now obtainable and copies of some of which surely are present in every well-equipped laboratory. It is somewhat startling to read in the preface that the field of normal histology is inadequately covered as regards text-books. This becomes still more puzzling when we find that in his list of references the author cites nearly a dozen works that have been issued since 1900 and several of which are recognized as standard text-books. Dearth of books dealing with normal microscopic anatomy and histology is, therefore, hardly an adequate reason for a new book on this subject. In this case, however, it seems as if the author had a real interest in his subject and that his book, which has been prepared with care, will be found useful.

BACTERIOLOGY AND THE PUBLIC HEALTH. By George Newman, M.D., F.R.S.E., D.P.H., Formerly Demonstrator of Bacteriology in King's College, London. Illustrated. Third Edition. Cloth. Pp. 497. Price, $5.00. Philadelphia: P. Blakiston's Son & Co. 1904.

Several new chapters have been added to this book, and the whole revised and enlarged. The book aims to give a simple general statement of our present knowledge of microbiology in relation to public health for the special benefit of the general student of hygiene and of the medical officer of health. Inasmuch as malaria and other diseases caused by microbes, other than bacteria, in the usual sense of the word, are considered, objection might be made to the present title. Microbiology would seem to fit the case better. Take it all in all, the book is well written and has a distinct field of usefulness. We think that the account given of yellow fever is unsatisfactory because of the relatively large amount of space given to Sanarelli's bacillus and the wholly inadequate statement of the significance and the results of the work of Reed and his colleagues. The citation of streptococcus and pneumococcus infections as good examples of the value of antitoxic treatment is, of course, not in accord with our present state of knowledge. Lobar or croupous pneumonia is said to be associated with two organisms, "Fränkel's diplococcus and Friedländer's pneumobacillus," a statement that one would least expect to meet in this place. The "ray fungus" is given the absurd name of "streptothrix actinomyces." The bacteriology of sewage, soil and food seems to be discussed very satisfactorily.

Miscellany.

WINNIPEG TYPHOID EPIDEMIC.

Expert's Report to the Municipal Authorities on the Causes and His Recommendations for Future Prophylaxis.

An excessive prevalence of typhoid fever is no new thing in Winnipeg. Table 1 shows the death rates calculated from the cases and the deaths reported to the city board of health and from the deaths reported to the Department of Agriculture through the office of the city clerk.

TABLE 1.—CASES AND DEATH RATES FROM TYPHOID FEVER IN WINNIPEG.

Year.	Est. Pop'n.	Cases.	Death Rate per 10,000 Pop'n. Bd. of Health.	Dep't of Agricult.
1900.....	42,500	582	7.99	11.75
1901.....	44,800	349	8.04	11.83
1902.....	48,400	356	5.99	9.50
1903.....	56,700	409	8.11	8.48
1904.....	67,300	1,276	19.74	24.85

Whichever mortality record be accepted as more nearly correct, it is apparent that the death rate from typhoid fever in Winnipeg has for some years been in marked excess, and in 1904 in alarming excess, as compared with that in the majority of other American and European cities. This is true, even if the population estimate be increased 20 per cent. in the years named and the death rate correspondingly lowered. To facilitate comparison, recent average death rates for a number of other cities are given in Table 2.

TABLE 2.—TYPHOID DEATH RATE OF VARIOUS CITIES.

City.	Death-rate per 10,000 Pop'n.	City.	Death-rate per 10,000 Pop'n.
Lawrence	2.6	Louisville	6.0
Albany	5.1	Milwaukee	1.8
Baltimore	3.5	Minneapolis	3.9
Boston	3.0	New York	1.9
Buffalo	2.7	Omaha	2.8
Chicago	2.8	Philadelphia	5.4
Cincinnati	3.5	Pittsburg	10.6
Cleveland	4.0	Providence	2.4
Columbus	3.1	St. Louis	2.3
Denver	3.8	St. Paul	2.3
Fall River	1.5	San Francisco	3.7
Detroit	1.9	Washington	8.8
Indianapolis	3.8	Berlin, Germany	0.5
Jersey City	2.4	London, England	1.4
Kansas City	3.1	Hamburg, Germany	0.9
Los Angeles	4.3	Rotterdam, Holland	0.2

A critical examination of the available data in Winnipeg showed an interesting and significant distribution of the cases both in time and space. It soon became evident that several factors had conspired to produce the abnormally large amount of typhoid fever that occurred in Winnipeg in 1904. For the sake of clearness these may be considered under separate heads.

I. CONTACT INFECTION.

A very serious feature of the situation in Winnipeg is the occurrence of a large number of cases in house groups. In perhaps the majority of dwellings in which typhoid fever appeared, the first case was followed more or less promptly by other cases in the same household. In nearly all instances in which more than one case occurred in a house the dates of infection are such as to point unmistakably to a more or less direct transfer of the specific disease germ from the individuals first attacked to other members of the household.

The reason for this is that the typhoid bacillus may multiply in the body of the patient in immense numbers. Both the discharges from the bowels and from the bladder may contain countless millions of living microbes, and a very small amount of infectious material, therefore, is capable of infecting many persons. One element of peculiar danger is the fact that typhoid germs occasionally persist in the urine of typhoid convalescents for weeks and even months after complete recovery has taken place. Special vigilance is necessary to combat the peril from this source.

Abundant evidence has been secured that in Winnipeg, as in

[EDITOR'S NOTE.—The typhoid epidemic in Winnipeg, Manitoba, has been mentioned from time to time in our news columns. The municipal authorities of Winnipeg engaged Edwin O. Jordan, associate professor of bacteriology in the University of Chicago, to make an investigation of the situation. This article is an abstract of his official report, presented to the Winnipeg City Council, Feb. 8, 1905.]

many other American cities, the household precautions against the spread of infection from case to case have not been as rigorous as is desirable. In some instances food has been prepared for the members of a family by the individual who was at the same time performing some of the duties of nurse to a typhoid fever patient. Members of a patient's family and even outside visitors have in some instances associated more or less freely with a patient or convalescent, and in more than one household disinfection of the excreta and of the bedding and other articles used by the patient has not been carried out with the rigor necessary to stamp out all trace of infection.

[As an illustration of the nature of the precautions considered essential by modern authorities, Mr. Jordan quoted the regulations of the German government concerning the supervision of typhoid fever cases. We omit this from the abstract.—ED.]

II. LACK OF SEWER CONNECTIONS.

The large number of outside privies in Winnipeg is undoubtedly favorable to the maintenance of typhoid fever, and in the past has been largely responsible for the prevalence of the disease in the warmer months of the year. Winnipeg contains approximately 12,000 buildings, and only 5,600 sewer connections. Some of these privies must occasionally be used by persons suffering from mild or unrecognized cases of typhoid fever or by convalescents. Under the conditions that prevail in more than one section of the city the transfer of infectious material from these outhouses to the dwellings and to the persons of neighbors is not only possible, but in greater or less degree certain to occur. Fecal material from some of these privies was seen scattered over the whole width of the alley. Children play in the alleys on which these privies abut, and may readily soil their shoes, clothing and even fingers with infectious material. Dogs and other animals may convey infection into houses in various ways.

Perhaps the most mischievous carrier of infection under the circumstances described is the common house-fly. It has been repeatedly shown that this pestiferous insect is a common purveyor of infection. The house-fly is bred in large numbers in horse manure, and the intermingling of stables and privy vaults seen in some of the back lanes of Winnipeg affords peculiarly favorable conditions for the spread of infection by this means.

The past history of typhoid fever in Winnipeg bears out this plain inference from the sanitarry conditions. During the five years for which record has been obtained, typhoid fever has prevailed most extensively in August, September and October, the very months when infection in the ways indicated would be most likely to take place. The local distribution of cases is wholly in accord with the assumption of this mode of infection.

III. MILK INFECTION.

A house-to-house canvass[1] showed that many more cases developed in families supplied with milk from some milkmen than from o hers. It must not be forgotten that in every locality where typhoid fever is prevalent and where opportunities for infection are so numerous as they have been in the city of Winnipeg in the last six months, infection of some one or more of the milk supplies is not only probable, but almost certain to occur. This is one of the recognized evils that follow in the wake of a great accumulation of infectious material in a community. Danger from this source can be much diminished, however, by frequent inquiry into the health of those engaged in producing and distributing the milk, and especially by preventing the infection of the milk or of the milk vessels en route.

IV. WATER SUPPLY.

The main water supply of Winnipeg, derived from an artesian well, has been frequently tested in the past by competent analysts, and with uniformly favorable results. There is nothing in the sources of this water, in the softening treatment to which it is subjected, or in its epidemiologic relations, to cast suspicion on its wholesomeness. The water of the Assiniboine River, however, which has been used at times as an accessory source of supply, comes from a watershed exposed to pollution at many points, and it has been generally recognized that the use of raw Assiniboine water was to be avoided as much as possible. On two occasions, in 1904, raw Assiniboine water was turned into the city mains to increase the inadequate supply and to meet the emergency caused by large fires. Examination of a table of the reported cases of typhoid fever tabulated by weekly and fortnightlty periods, reveals several very interesting facts. There is noted first a rapid rise in the amount of typhoid fever, reaching its maximum in September, at the time when fly infection might reasonably be supposed to manifest its greatest effect. A decline in the number of cases reported then sets in precisely as was the case in four preceding years. This decline is abruptly checked in the fortnight October 24 to November 6, when the number of cases reported rises to 110 as compared with 83 in the preceding fortnight. In the succeeding bi-weekly periods the decline again continues with considerable regularity until in the period December 19 to January 1 a minimum of 45 cases is reached. Instead of continuing to decline, however, a striking increase of almost explosive charac'er is shown in the next fortnight when the cases reported registered 120. It is a highly suspicious circumstance that the dates on which the Assiniboine water was pumped into the city mains, namely, October 10 and December 28, correspond with the dates of probable infection of the cases reported in the two periods referred to.

Supposing, however, that infected water played no part in the production of typhoid fever on the occasions mentioned, it must be strongly emphasized that even the occasional use of the raw Assiniboine water is an unwholesome and dangerous practice. Bacterial examinations made by the writer of the river water collected at the intake of the pumping-station showed the presence of fecal bacteria in the water in considerable numbers. On days when the Assiniboine water was being pumped, water drawn from the taps in the southern portion of the ci'y showed likewise the presence of fecal bacteria. The northern portions which, from their location, were presumably receiving chiefly or wholly water from the artesian well, did not contain any objectionable bacteria in the tap water at the time the examination was made.

OTHER CONSIDERATIONS.

The condition of the city sewers in Winnipeg has been such as to give rise to the conjecture that the emanations from the manholes or from defective plumbing might account in some way for the prevalence of typhoid fever. It is difficult, however, to find support for this view in the known facts of typhoid epidemiology; and the ascertained facts regarding the distribution of typhoid fever in Winnipeg lend no countenance to the view that sewer air has been a direct means of transmission in the present outbreak.

At the same time, it must be remembered that the highly offensive stenches arising from decomposing matter in sewers have often been shown to exercise a depressing and weaken-

1. Incidentally, this canvass showed that in this particular district only 70 out of 89 cases had been reported to the Board of Health, or about 78 per cent. of the number actually existing. If the same ratio was maintained throughout the city, several hundred cases of typhoid fever actually occurred of which the Board of Health received no record. Furthermore, it must be noted that the dates on which the cases are reported to the Health Office are in some instances not to be taken as the dates of inception of the disease. Twenty-five cases that had been reported to the Board of Health but regarding which more accurate information was obtained by canvass, were selected at random for comparison. Seven of these had been reported to the Board of Health within three days after the beginning of the disease, so far as the latter could be fixed by the date of taking to bed and summoning a physician; eight more were reported within ten days, and the remaining ten cases were not reported to the Board of Health until 10 to 15 days had elapsed. From these facts it can be readily seen how greatly the work of local officials must be hampered by the lack of precise information concerning the occurrence and date of onset of the disease. Prompt action on the part of the health authorities would be greatly aided by a further systematization in the methods of reporting and supervising cases of typhoid fever. In any attempt to combat further epidemic spread, the advantages of a full knowledge concerning the occurrence and distribution of all cases is so obvious as hardlly to need comment.

ing influence on human vitality. It is in some such way, if at all, that we must conceive the peculiar condition of the Winnipeg sewerage system to have influenced the spread and maintenance of typhoid fever.

No reason was found for attaching suspicion to the ice supply.

In view of the facts that have been instanced regarding the frequency of contact infection, it is desirable to emphasize once more the multifarious ways in which infection can occur when once typhoid fever has become firmly established in a community. During the whole course of the illness and often far into convalescence immense numbers of typhoid bacilli leave the body of the patient. The dangers to which the whole community is exposed from unrecognized or unsupervised cases of typhoid fever are therefore countless. Almost any raw foodstuff may be the vehicle for infection. Milk, butter, raw vegetables, fruit, bread, if handled by typhoid convalescents or peddled by persons dwelling in infected houses, may become a means of spreading the disease. Under some conditions it is apparent that laundries may aid in dissemination of the infection. In short, it is unnecessary to enumerate all the possible ways in which infection can be transmitted, and typhoid fever become fastened to the shoulders of a community as an endemic disease. Experience and common sense will serve to point the way to these dangers and to discover means for their avoidance. Thorough disinfection is the key to the situation.

SPECIFIC RECOMMENDATIONS.

1. To deal with the prevention of contact infection the health officer should be in the possession of ample power and financial resources for isolating, disinfecting and carrying out such other measures as are in his judgment necessary to prevent spread of the disease from the case under supervision. Every fresh case of typhoid fever is a new focus of infection, and unless stringently controlled, is a more or less direct menace to the whole city. Prompt notification of new cases is imperative.

2. In those parts of the city where sewers exist, connection of all houses with the sewers should be enforced and that as speedily as practicable. Until such time as this is accomplished, temporary measures, such as thorough disinfection with milk of lime, should be promptly applied. Of foremost importance is the abolition of the open outhouses. It is evident that it is not consonant with the public safety that any person ill with typhoid fever should be allowed to remain in a house without sewer connection.

3. Milk-measuring vessels or general receptacles of any sort should not be carried into or removed from houses in which typhoid fever is present. The daily delivery of milk must be made with suitable precautions. Inspection of the sources and routes of milk supply can not be too vigilant at times when typhoid fever is known to prevail.

4. The existence of private wells renders efficient control of the city's drinking water more difficult than if a single source of water supply existed. The use of such wells should be restricted and their number reduced as rapidly as possible. It should be made physically impossible for the employes of the Canadian Pacific Railway Company and for those of the City Railway Company to draw water for drinking purposes from taps connected directly with the Assiniboine or Red River. Experience under similar conditions in many cities has shown the futility of merely providing hortatory placards. In this connection it may be once more pointed out that a single case of typhoid fever due to drinking impure water may become a center from which scores or even hundreds of other cases will arise.

Water from the Assiniboine River should be used as little as possible.

5. I would recommend finally the employment of a man who has had experience in the management of epidemics to take charge of the whole situation, and to institute and enforce the necessary measures for stamping out all traces of infection.

In conclusion, I wish to acknowledge my deep obligation for the effective assistance rendered during the investigation by the various municipal departments and officials who have placed at my disposal all available data, and to express especially my indebtedness to Dr. Gordon Bell, who has afforded me valuable laboratory facilities and has greatly aided me in various ways.

The Downfall of Therapeutics.—The following editorial from *American Medicine* shows clearly the present status of therapeutics and materia medica: "Before the development of the natural sciences placed medicine as an art among the applied sciences, therapeutics was the most important branch of medical study and practice. Among the medical sects the same observation holds true at the present time. During the last half century medical progress, however, the pursuit of exact medical knowledge, has led students chiefly into surgery, diagnosis, pathology and bacteriology. Definite knowledge of the intimate reactions of the metabolic processes of our bodies with foreign agents introduced as drugs is just coming into sight with the growth of the new science of pharmacology, and so necessarily therapeutics at present lags behind. All of which is new to no one who sees, and is introduced simply to draw attention to an unfortunate practical result of this state of affairs. For some years progress in materia medica and therapeutics has seemed almost to lie in the hands of lay manufacturers. With their new compounds and their disguised old ones, the drug makers have kept the materia medica expanding at an alarming rate. This condition is by no means wholly to be deplored, as the pharmaceutists have contributed much to the comfort of physician and patient. However, the tremendous preponderance of commercialism in recent therapeutic progress has brought with it some ill conditions. Money-making attracts the unscrupulous, and the medical profession has difficulty in separating the wheat from the tares. Any good new laboratory product of therapeutic value is immediately imitated or attacked. There develops intense feeling between foreign and domestic manufacturers, and all the while the poor doctor, as the bone of contention, is overwhelmed with 'literature' and 'medical journals' (*sic*) and agents. Contradictions multiply until mercury and quinin appear to be about the only agents of whose qualities the physician may feel reasonably sure! The prize—the patronage of the profession—being of great commercial value, many subterfuges are employed by some to enable them to share in it. Official positions in medical bodies at times are sought, and at other times are appropriated by not too nice strategy. Medical journals are subsidized and new ones are published. A number of makers pay a regular stipend secretly to complaisant doctors here and there over the country, who, in return, are expected to read 'useful' papers and at every possible turn to uphold the wares of the benefactor. Thus it comes that therapeutics has reached its present low estate. Scientific physicians give their time to diagnosis and pathology, and limit themselves to simplest measures of treatment. Others make a diagnosis and then choose the remedy that the maker says is best for that condition. Many among us who love the study of means to alleviate suffering have endeavored faithfully to recreate professional interest in pure therapeutics, but the combat with intrenched wealth and monopoly is an unequal one in the face of general professional lethargy. But hope is not to be abandoned."

Sudden whitening of the hair is well authenticated, being known for centuries as recorded poetically by Byron in the "Prisoner of Chillon," says the *Med. Times*. Darwin tells of a man who, while being led to execution, became gray before the eyes of the spectators. Laycock records the case of a Sepoy who became gray in a half-hour. Cantrell reported an interesting case in his clinic, a man of 45, whose moustache became white in twenty-four hours and in ten days his whole head of hair changed its color to white. Brown-Séquard watched his own hair change; it occurred so rapidly that he could note the change daily. Henry of Navarre had his hair change in twenty-four hours.

State Boards of Registration.

COMING EXAMINATIONS.

Connecticut Medical Examining Board, City Hall, New Haven, March 14-15. Secretary, Charles A. Tuttle, M.D., New Haven.

Massachusetts Board of Registration in Medicine, State House, Boston, March 14-15. Secretary, Edwin B. Harvey, M.D., Boston.

Maine Board of Medical Registration, City Building, Portland, March 28. Secretary, Wm. J. Maybury, M.D., Saco.

District of Columbia January Report.—Dr. W. C. Woodward, secretary of the Board of Medical Supervisors of the District of Columbia, reports the examination held at Washington, Jan. 12, 1905. The number of subjects examined in was 17; total number of questions asked, 80; percentage required to pass, 75. The total number examined was 14, of whom 12 passed and 2 failed. The following colleges were represented:

PASSED. College.	Year Grad.	Per Cent.
Columbian University	(1904)	82.06, 83.31, 79
Georgetown University	(1904)	85.03
Howard University	(1903) 75.18 (1904)	79.68*, 81.31*
Johns Hopkins University	(1902)	86, 88.09
University of Pennsylvania	(1883)	92.18
University of Virginia	(1901)	96.18
Woman's Med. Coll. of Pennsylvania	(1903)	95.15
FAILED.		
Georgetown University	(1904)	74.18
Howard University	(1904)	60.03

*Second examination.

Iowa Report for 1904.—Dr. J. F. Kennedy, secretary of the Iowa State Board of Medical Examiners, reports the written examinations held at Des Moines during 1904. At each examination the number of subjects examined in was 8; total number of questions asked, 80, and percentage required to pass, 75. At the examination held in April, 80 persons were examined, of whom 69 passed and 11 failed. The following colleges were represented:

PASSED. College.	Year Grad.	Per Cent.
Barnes Medical College, St. Louis	(1903)	75
College of P. and S., Baltimore	(1902)	87
College of P. and S., New York City	(1891)	87
Ensworth Medical College, St. Joseph, Mo.	(1904)	76, 77, 81
Creighton Medical College, Omaha, Neb.	(1901)	77
College of P. and S., Keokuk, (1904) the grade of 75 was reached by one, 76 by two, 77 by five, 78 by one, 79 by three, 80 by three, 81 by two, 82 by three, 83 by three, 84 by five, 85 by two, 86 by three and 87 by four.		
McGill University, Montreal, Canada	(1903)	88
Rush Medical College, Chicago, (1895) 90, (1901) 87, (1903) 85, 86, (1904) 85.		
Coll. of P. and S., St. Louis, (1902) 75, (1903) 78, (1904)		88.89
Sioux City College of Medicine, (1904) the grade of 81 was reached by one, 82 by one, 84 by two, 85 by one, 86 by one, 87 by three, 88 by one, 89 by one and 90 by one.		
University of Iowa	(1897)	81
University Medical College, Kansas City, Mo.	(1903)	76
University of Michigan	(1894)	87
FAILED.		
Homeopathic Medical College, St. Louis	(1904)	74
St. Louis College of P. and S.	(1904)	63
Keokuk Medical College	(1903) 69, (1904) 70, 70, 73,	74
Eclectic Medical Institute, Cincinnati	(1904)	65†
University of Nebraska	(1903)	68
St. Louis College of P. and S.	(1902)	62*
University Medical College, Kansas City	(1902)	64

*Second examination. †Fourth examination.

At the examination held in June 136 applicants were examined, of whom 120 passed and 16 failed. The following colleges were represented:

PASSED. College.	Year Grad.	Per Cent.
Baltimore Medical College	(1900)	87
Barnes Medical College, St. Louis	(1904)	75, 80, 80
Bennett Eclectic Coll. of Med. and Surg.	(1904)	93
Denver and Gross Medical College, Denver	(1903)	89
Iowa College of P. and S., Des Moines	(1904)	82
Drake University, Des Moines, (1904) the grade of 76 was reached by two, 77 by one, 80 by one, 83 by two, 84 by two, 85 by one, 87 by one and 88 by one.		
Hahnemann Medical College, Chicago	(1904)	76, 79, 86
Hering Medical College, Chicago	(1904)	77
Jefferson Medical College	(1904)	82, 84, 85, 86, 87, 88
John A. Creighton Medical College, Omaha	(1904)	80, 81
Marion Sims-Beaumont, St. Louis	(1904)	76
Medico-Chirurgical College, Philadelphia	(1904)	86
Northwestern University, (1904) the grade of 78 was reached by one, 82 by two, 83 by one, 84 by one, 85 by three, 87 by two, 88 by two, 89 by one, 90 by one and 92 by one.		
Rush Medical College, Chicago	(1904)	81
St. Louis College of P. and S.	(1901) 75, (1904)	77
University of Bellevue, New York City	(1904)	90
College of P. and S., Chicago, (1903) the grade of 75 was reached by one, (1904) 78 by one, 79 by one, 80 by one, 83 by two, 84 by one, 85 by one, 88 by one and 89 by one.		
University of Iowa, (1904) the grade of 76 was reached by one, 77 by two, 79 by three, 80 by four, 81 by five, 82 by five, 83 by four, 84 by ten, 85 by three, 86 by four, 87 by six, 88 by three, 89 by four and 90 by one.		
University of Minnesota	(1901) 79, (1904)	82, 85
University of Nebraska	(1904)	80
FAILED.		
Keokuk Medical College	(1904)	71*
Homeopathic Medical College, St. Louis	(1904)	73*
St. Louis College of P. and S.	(1904)	59*
Barnes Medical College, St. Louis	(1901)	62, 71
Marion Sims Medical College, St. Louis	(1904)	63, 72
University of Iowa	(1904)	71
College of P. and S., Chicago	(1904)	64
Eclectic Medical Institute, Cincinnati	(1883)	69††
American Medical College, St. Louis	(1903)	43
Chicago Homeopathic Medical College	(1904)	72
University of Iowa	(1899)	72
Meharry Medical College, Nashville, Tenn.	(1895)	68†
University of Iowa	(1904)	74

*Second examination. †Fourth examination. ††Fifth examination.

At the examination held in September 37 applicants were examined, of whom 25 passed and 12 failed. The following colleges were represented:

PASSED. College.	Year Grad.	Per Cent.
American Medical Missionary College, Chicago	(1904)	81
Barnes Medical College, St. Louis	(1904)	75
Dartmouth Medical College, Hanover, N. H.	(1903)	88
Drake University, Des Moines	(1904)	90
Hahnemann Medical College, Chicago	(1904)	90
Illinois Medical College, Chicago	(1904)	81, 86
Jefferson Med. College, Philadelphia, (1896) 90, (1904)		82, 85, 86
Creighton Medical College	(1904)	89
National Medical University, Chicago	(1904)	77
Northwestern University	(1904)	83, 90
Rush Med. Coll., (1895) 91, (1899) 91, (1903) 83, (1904)		84, 86
College of P. and S., Chicago	(1899)	91
University of Iowa	(1904)	82
University of Michigan	(1904)	85
University of Nebraska	(1903)	76
University of Pennsylvania, Philadelphia	(1903)	81
Washington University, St. Louis	(1903)	77
FAILED.		
College of P. and S., Chicago	(1899)	66
Pulte Medical College	(1888)	64
Drake University, Des Moines	(1903)	66**
Chicago Homeopathic Medical College	(1904)	72*
Eclectic Medical Institute, Cincinnati	(1883)	57*
Barnes Medical College, St. Louis	(1901)	60*
University of Iowa	(1904)	71*
College of P. and S., Chicago	(1904)	64
Eclectic Medical Institute, Cincinnati	(1903)	70††
Keokuk Medical College	(1904)	71*
Barnes Medical College, St. Louis	(1904)	70*
Jenner Medical College, Chicago	(1902)	72

*Second examination. **Third examination. ††Sixth examination.

At the December examination 17 applicants were examined, of whom 12 passed and 5 failed. The following colleges were represented:

PASSED. College.	Year Grad.	Per Cent.
Rush Medical College	(1904)	86
Illinois Medical College, Chicago	(1905)	85
Northwestern University	(1904)	84
University of Nebraska	(1904)	77
College of P. and S., Chicago	(1904)	82
National Medical University, Chicago	(1903)	75
University of Michigan	(1880)	79
Jefferson Medical College	(1904)	81, 86, 87
College of P. and S., Keokuk	(1903)	77
Toronto School of Medicine, Canada	(1904)	88
FAILED.		
Eclectic Medical Institute, Cincinnati	(1883)	61**
Chicago Homeopathic Medical College	(1904)	71*
University Medical College, Kansas City	(1902)	69*
Barnes Medical College, St. Louis	(1904)	65*
Jenner Medical College, Chicago	(1902)	72*

*Second examination. **Third examination.

The general average attained by all graduates of the College of P. and S., Keokuk, who passed during the year, was 81.5; of Rush Medical College, 82.9; of Sioux City College of Medicine, 86.9; of Drake University, 82.9; of Jefferson Medical College, 85.3; of Northwestern University, 85.6; of College of P. and S., Chicago, 83; of the University of Iowa, 83.4.

Oregon January Report.—Dr. Byron E. Miller, secretary of the State Board of Medical Examiners of Oregon, reports the written examination held at Portland, Jan. 3-5, 1905. The number of subjects examined in was 15; total number of questions asked, 100; percentage required to pass, 75. The total number of persons examined was 23, of whom 19 passed and 4 failed.

PASSED. College.	Year Grad.	Per Cent.
Barnes Medical College	(1896) 80, (1898)	81
Kansas City Medical College	(1903)	89
Eclectic Medical Institute	(1904)	82
University of Minnesota	(1903) 84, 79; (1904)	84
Rush Medical College	(1902) 79, 81; (1903) 83, (1904)	83
Starling Medical College	(1888) 82, (1896)	82
Trinity Medical College	(1901)	82
American Medical Missionary College	(1904)	86
University and Bellevue Hospital Medical College	(1875)	83
Vanderbilt University	(1900)	85
Marion Sims-Beaumont College of Medicine	(1904)	84
Bennett College of Eclectic Medicine	(1902)	80

FAILED.

Pulte Medical College	(1879)	57
Northwestern University	(1884)	72
Kings and Queens College of Physicians	(1888)	59
University of Michigan	(1885)	*

*Withdrew from examination.

Wyoming Report for 1904.—Dr. George P. Johnstone, secretary of the State Board of Medical Examiners of Wyoming, reports that during 1904 sixty-five persons were licensed to practice medicine and that seven persons were refused license because they were unable to furnish satisfactory credentials.

Rush Medical College had 11 representatives; Jefferson Medical College, 2; Eclectic Medical Institute, Cincinnati, 1; Kansas Medical College, 1; University of Colorado, 3; Barnes Medical College, 2; University of State of New York, 1; College of P. and S., Keokuk, 1; Bennett Medical College, 1; Lincoln Medical College, 2; McGill University, 1; Dalhousie University, Nova Scotia, 1; Denver and Gross Medical College, 4; Marion-Sims-Beaumont, 1; Washington University, Medical Department, St. Louis, 1; College of P. and S., Chicago, 3; Trinity College, Toronto, 1; Baltimore University, 4; Missouri Medical College, 1; University of Nebraska, 2; University of Japan, 1; University Medical College, Kansas City, 2; Eclectic Medical University, Kansas City, 1; Medico-Chirurgical College, Kansas City, 1; Homeopathic Medical College, Kansas City, 1; Columbia University, 1; National University, Washington, 1; College of P. and S., St. Louis, 1; University of Vermont, 1; University of Michigan, 1; Alexander University, 1; Germany, 1; Hospital College of Medicine, Louisville, 1; Hering Medical College, Chicago, 1; Baltimore Medical College, 1; University of Minnesota, 1; University of Buffalo, 1; Eclectic Medical College, Penn., 1; Omaha Medical College, 2; University of Iowa, 1; Kansas City Medical College, 1.

The Public Service.

Army Changes.

Memorandum of changes of station and duties of medical officers, U. S. Army, week ending Feb. 11, 1905:

Winn, Robert N., and Thomason, Henry D., asst.-surgeons, ordered to report to Lieut.-Col. George H. Torney, deputy surgeon general, U. S. Army, General Hospital, Presidio of San Francisco, for examination for promotion not later than March 3, 1905.

Mathews, Geo. W., asst.-surgeon, retired as captain, to date Feb. 2, 1905.

Smart, Robert, asst.-surgeon, order changing station from Fort Du Pont, Del., to Fort Sheridan, Ill., is revoked.

Jean, Geo. W., asst.-surgeon, granted two months' leave of absence.

Banister, Wm. B., surgeon, ordered to accompany Second Squadron, Eighth Cavalry, from Jefferson Barracks, Mo., to San Francisco, and then return to proper station.

Thornburgh, R. M., asst.-surgeon, left Fort Warren, Mass., on ten days' leave of absence.

Baker, David, and Buck, Carroll D., asst.-surgeons, ordered to accompany Sixth Infantry from Fort Leavenworth, Kan., to San Francisco.

Torney, George H., deputy surgeon general, reports in temporary charge of C. S. O. Department of California.

Smart, Robert, asst.-surgeon, ordered to proceed from Fort Du Pont, Del., to Fort Myer, Va., for duty.

Wilson, James S., asst.-surgeon, ordered to proceed from Fort Myer, Va., to Fort Oglethorpe, Ga., for duty.

Little, Wm. L., asst.-surgeon, ordered to proceed from Fort Oglethorpe, Ga., to Jackson Barracks, La., for duty.

Marvin, Marion F., contract surgeon, granted an extension of one month to his leave of absence.

Sanford, Joseph L., contract surgeon, ordered from Clinton, Va., to Fort Leavenworth, Kan., to accompany the Sixth Infantry thence to Philippine service.

Anderson, Everett, A., contract surgeon, ordered from Georgetown, Ky., to Fort Leavenworth, Kan., to accompany the Sixth Infantry thence to Philippine service.

Hewitt, John M., contract surgeon, ordered from Kewanee, Ill., to Jefferson Barracks, Mo., to accompany the Second Squadron, Eighth Cavalry, thence to Philippine service.

Navy Changes.

Changes in the medical corps, U. S. Navy, for the week ending Feb. 11, 1905:

Wells, H., medical director, commissioned medical director, with rank of captain, from Jan. 1, 1905.

Drake, N. H., medical inspector, commissioned medical inspector, with rank of commander, from Jan. 1, 1905.

Stepp, J., P. A. surgeon, commissioned P. A. surgeon, with rank of lieutenant, from June 7, 1904.

Bishop, L. W., asst.-surgeon, detached from the Naval Hospital, New York, and ordered to continue duties at the Navy Yard, N. Y.

Blue, J. H., and Foster, T. G., asst.-surgeons, appointed asst.-surgeons, with rank of lieutenant (J. G.), from Jan. 16, 1905.

Harmon, G. E. H., medical director, commissioned medical director, with rank of captain, from Dec. 15, 1904.

Hibbett, C. H., medical inspector, commissioned medical inspector, with rank of commander, from Dec. 15, 1904.

Guest, M. S., surgeon, commissioned surgeon, with rank of lieutenant commander, from Jan. 20, 1903.

Mayers, G. M., asst.-surgeon, ordered to the Naval Hospital, New York.

Elmore, B., A. A. surgeon, ordered to the Navy Yard, Washington, D. C., for duty at the Naval Hospital.

Von Wedekind, L. L., surgeon, ordered to the Naval Training Station, Newport, R. I., with additional duty on board the *Constellation*.

Barber, G. H., surgeon, detached from the Naval Training Station, Newport, R. I., and ordered to the *Ohio* Feb. 25, 1905.

High, W. E. G., asst.-surgeon, detached from duty with Marine detachment, Midway Island, and ordered to the Naval Training Station, San Francisco.

Tyree, F. W., A. A. surgeon, detached from the Navy Yard, Charleston, S. C., ordered to duty with Marine detachment on Midway Island.

Grunwell, A. G., surgeon, when discharged from treatment at the Naval Hospital, New York, ordered to duty at that hospital.

Odell, H. E., P. A. surgeon, detached from the Naval Hospital, New York, February 15, and ordered to the *Galveston* Feb. 15, 1905.

DeValin, C. M., surgeon, commissioned surgeon, with rank of lieutenant commander, from Jan.. 31, 1903.

Plummer, R. W., P. A. surgeon, ordered to the Navy Yard, Charleston, S. C., February 17.

Public Health and Marine-Hospital Service.

List of the changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service for the seven days ending Feb. 5, 1905:

Gassaway, J. M., surgeon, granted leave of absence for ten days from February 9.

Richardson, T. F., P. A. surgeon, to proceed to Savannah Quarantine and assume temporary charge of the Service during the absence, on leave, of A. A. Surgeon W. J. Linley.

Wilson, R. L., P. A. surgeon, granted leave of absence for one month from March 1.

Francis, Edward, asst.-surgeon, granted leave of absence for seven days from Feb. 2, 1905, under Paragraph 191 of the Regulations. Granted extension of leave of absence for twenty-three days from February 9.

Duffy, F., A. A. surgeon, granted leave of absence for seven days from February 8.

Hargis, J. W., A. A. surgeon, granted leave of absence for twenty days from February 8.

Linley, W. J., A. A. surgeon, granted leave of absence for thirty days from February 13.

McConnell, E. F., A. A. surgeon, granted leave of absence for thirty days from February 1.

Morris, G. A., pharmacist, relieved from duty at Fort Stanton, N. M., and directed to proceed to St. Louis, Mo., and report to the medical officer in command for duty and assignment to quarters, relieving Pharmacist J. M. Bell.

Bell, J. M., pharmacist, on being relieved from duty at St. Louis by Pharmacist G. A. Morris, to proceed to Fort Stanton, N. M., and report to the medical officer in command for duty and assignment to quarters.

BOARD CONVENED.

Board convened to meet at the Marine Hospital, Baltimore, Feb. 3, 1905, for the physical examination of an officer of the Revenue-Cutter Service. Detail for the board: P. A. Surgeon C. W. Wille, chairman; A. A. Surgeon G. H. Steuart, recorder.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon General, Public Health and Marine-Hospital Service, during the period from Feb. 3 to Feb. 11, 1905:

SMALLPOX—UNITED STATES.

District of Columbia: Washington, Jan. 28-Feb. 4, 1 case.
Georgia: Macon, Jan. 21-28, 1 death.
Illinois: Jan. 28-Feb. 4, Chicago, 13 cases, 6 deaths; Galesburg, 1 case.
Kansas: Topeka, Jan. 28-Feb. 4, 1 case.
Louisiana: New Orleans, Jan. 21-Feb. 4, 23 cases, 1 death, 9 cases imported.
Maine: Perry, Feb. 1, 1 case.
Michigan: Detroit, Jan. 28-Feb. 4, 3 cases.
Missouri: St. Louis, Jan. 28-Feb. 4, 38 cases.
New York: New York City: Jan. 21-Feb. 4, 9 cases, 1 death.
Ohio: Toledo, Jan. 28-Feb. 4, 5 cases.
South Carolina: Charleston, Jan. 28-Feb. 4, 5 cases.
Tennessee: Jan. 28-Feb. 4, Memphis, 14 cases; Nashville, 8 cases.

SMALLPOX—INSULAR.

Philippine Islands: Manila, Dec. 10-24, 2 cases.

SMALLPOX—FOREIGN.

Bosnia and Herzegovina, Nov. 1-30, 22 cases, 3 deaths.
Brazil: Pernambuco, Dec. 15-31, 116 deaths; Rio de Janeiro, Jan. 1-8, 45 cases, 15 deaths.
Ecuador: Guayaquil, Jan. 4-18, 3 cases; Manabi Province, Jan. 4, present.
France: Paris, Jan. 14-21, 17 cases, 3 deaths.
Germany: Bremen, Jan. 7-14, 1 case.
Great Britain: Glasgow, Jan. 20-27, 1 death; Jan. 14-21, Hull, 4 cases; Liverpool, 1 case; London, 1 case; Newcastle-on-Tyne, 11 cases; South Shields, 11 cases.
India: Bombay, Dec. 20-Jan. 10, 102 deaths; Calcutta, Dec. 17-Jan. 7, 5 deaths; Karachi, Dec. 24-Jan. 8, 6 cases, 1 death; Madras, Dec. 17-Jan. 6, 5 deaths.
Italy: Catania, Jan. 12-26, 4 deaths; Palermo, Jan. 7-21, 43 cases, 9 deaths.
Luxemburg: Dec. 1-15, 3 cases.
Mexico: City of Mexico, Dec. 17-Jan. 7, 4 cases, 4 deaths.
Netherlands: Rotterdam, Jan. 21-28, 2 cases.
Russia: Jan. 7-14, Odessa, 1 case; St. Petersburg, 2 cases, 3 deaths; Warsaw, Nov. 26-Dec. 3, 3 deaths.
Spain: Barcelona, Jan. 10-20, 12 deaths.
Straits Settlements: Singapore, Dec. 17-31, 2 deaths.
Turkey: Constantinople, Jan. 15-22, 17 deaths.
Venezuela: La Guaira, Jan. 21, epidemic.

YELLOW FEVER.

Brazil: Rio de Janeiro, Jan. 18, 1 case.
Mexico: Coatzacoalcos, Jan. 21-28, 1 case; Merida, Jan. 22-28, 1 case.
Panama: Colon, Jan. 28, 1 case, probably imported.

PLAGUE—INSULAR.

Philippine Islands, Manila, Dec. 3, 1 death.

PLAGUE—FOREIGN.

Africa: Cape Colony (East London), Dec. 25, 1 death.
Arabia: Aden, Dec. 31-Jan. 14, 161 cases, 116 deaths.
Brazil: Guaratingueta, Nov. 30-Dec. 18, 11 cases; Rio de Janeiro, Jan. 1-8, 22 cases, 11 deaths.
Egypt: Dec. 31-Jan. 7, Suez, 2 cases, 3 deaths; Tukh, 1 case, 1 death.
India: Bombay, Dec. 20-Jan. 10, 374 deaths; Calcutta, Dec. 15-Jan. 7, 67 deaths; Karachi, Dec. 25-Jan. 8, 120 cases, 105 deaths.
Siam: Bangkok, Dec. 17-24, present.
Siberia: Slobodskoi and Vigatka districts, Oct. 18-Dec. 14, 227 cases.

CHOLERA.

India: Bombay, Dec. 20-Jan. 10, 1 death; Calcutta, Dec. 15-Jan. 7, 304 deaths.
Russia: Dec. 7-14, Astrachan, 1 case; Baku province and city, 459 cases, 355 deaths; Erivan province and City, 1,506 cases, 1,265 deaths; Samara, 17 cases; Saratov, 10 cases; Trans-Caspian province, 40 cases, 1 death.
Turkey in Asia: Jan.-Dec. 26, 10,466 cases, 9,192 deaths.

Medical Organization.

Delaware.

This state now has a medical society in each county, every one of which has adopted the standard constitution and by-laws.

SUSSEX COUNTY MEDICAL SOCIETY.—This society has elected Dr. Robert B. Hopkins, Milton, president, and Dr. Roland G. Paynter, Georgetown, secretary.

KENT COUNTY MEDICAL SOCIETY.—At the annual meeting, Dr. James H. Wilson was elected president, and Dr. L. August H. Bishop, secretary, both of Dover.

NEWCASTLE COUNTY MEDICAL SOCIETY.—At the annual meeting, Dr. Peter W. Tomlinson was elected president; Dr. Joseph P. Wales, vice-president; Dr. Harold L. Springer, secretary, and Dr. William G. Winner, treasurer, all of Wilmington. The society endorsed any and all measures looking toward establishing a high standard of purity of the milk supply. At a previous meeting the standard constitution and by-laws had been adopted.

Nevada.

NEVADA STATE MEDICAL SOCIETY.—At the annual meeting of the Nevada State Medical Society, held in Reno, Dec. 19, 1904, the society was reorganized on the standard plan with the following officers: Dr. W. Lee Moore, Verdi, president; Drs. Charles E. Mooser, Reno, and M. R. Walker, Reno, vice-presidents, and Dr. John L. Robinson, Reno, secretary-treasurer.

South Carolina.

GEORGETOWN COUNTY MEDICAL SOCIETY.—Physicians of the county met at Georgetown, February 6, and after addresses by Dr. Walter Cheyne, councilor of the district, and Dr. J. N. McCormack, organized a county society on the standard plan, with the following officers: Dr. M. P. Moorer, president; Dr. H. D. Beckman, vice-president; Dr. Olin Sawyer, secretary-treasurer; Drs. F. C. Clark, W. M. Gaillard and L. B. Salters, censors, and Dr. William E. Sparkman, delegate to the state association, all of Georgetown.

GREENWOOD COUNTY MEDICAL SOCIETY.—Dr. J. N. McCormack addressed a meeting of physicians of the county at Greenwood, February 10, after which a county society was organized on the standard plan with the following officers: Dr. G. Pressly Neal, Greenwood, president; Dr. John Lyon, Ninety-six, vice-president; Dr. R. B. Epting, Greenwood, secretary; Drs. James B. Hughey, Greenwood, William T. Jones, Jones, and F. G. Moss, Verdery, censors, and Dr. Sanders L. Swygert, Greenwood, delegate to the state medical association. Dr. Mayer, councilor of the district, was unable to be present owing to serious illness.

Society Proceedings.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Regular Meeting, held Jan. 11, 1905.

The First Vice-President, Dr. Franklin B. Stahl, in the Chair.

The Practice of Medicine in India.

DR. ANNA M. FULLERTON gave an account of the difficulties attending the practice of medicine in India in consequence of social and religious customs. This, with the dense ignorance and grinding poverty of the mass of the people, are responsible for the widespread epidemics which prevail and which have baffled all the efforts of the English government to suppress. High caste women can never see a male physician, but must be treated by ignorant native midwives, and shocking mutilations often occur, for which repair of any kind is impossible. The hospitals established by the English government, and especially mission hospitals and dispensaries, are creating a sentiment in favor of western medicine.

The Antitoxin Treatment of Diphtheria.

DR. B. FRANKLIN ROYER of the Municipal Hospital, by statistics of the Board of Health of Chicago, New York City, Brooklyn and Philadelphia, proved an actual decrease in the loss of life in each city respectively at 5,400, 8,204, 951, and 1,853, a total for these four cities, without allowing for increased population, of 16,408 lives. By a table including 67,748 patients treated in the Metropolitan Asylums Board Hospital, a decrease in death rate of 15.24 per cent. was shown. By a table from the South Department in Boston, reporting 16,544 cases, a decrease of 29.26 per cent. was shown. In the Municipal Hospital, reporting 10,219 cases, there was a decrease of 10 per cent. He recommended that the dose of antitoxin be in proportion to the amount and location of exudate. He recommended large doses of antitoxin in nasal, naso-pharyngeal and laryngeal diphtheria, and urged a more general use of antitoxin as an immunizing agent, and earlier in the disease, without waiting for culture returns. The dose in use at the Municipal Hospital is: for tonsillar exudate (single), 2,500 units; purely tonsillar (double), 5,000 units; tonsillar exudate with pillars and uvula or pharynx involved, 7,500 to 10,000 units; nasal and any other part involved or for laryngeal diphtheria, 7,500 to 10,000 units. Repeat the dose in each type of disease in from 12 to 24 hours, depending on the sign of improvement, and every 24 hours thereafter; when a large amount of exudate persists, a dose of 5,000 to 7,500 units is given until a good part of the exudate has disappeared.

Severe Case of Acute Chorea Treated Successfully with Apomorphin.

DR. MONTROSE GRAHAM TULL reported a case of acute chorea coming on gradually in a girl, fifteen years of age, with menstruation not fully established, presenting symptoms of acute mania, thickened tongue, gutteral and unintelligible articulation and with incessant choreic movements. The body was covered with a confluent, morbilliform rash. After all the accepted forms of treatment had been tried with absolutely no effect, he concluded to try apomorphin in tentative doses: one-fortieth of a grain was administered hypodermically with remarkable result. The choreic movements ceased in about three minutes, and the child slept peacefully and quietly. One-twentieth of a grain of apomorphin, every three hours, by the mouth, was continued for three or four days, in addition to the arsenic which she had taken from the beginning, and the patient made an uninterrupted recovery.

Regular Meeting, held Jan. 25, 1905.

The President, Dr. James M. Anders, in the Chair.

The Need of Early Operation in Surgical Diseases of the Abdomen.

DR. JOHN B. ROBERTS exhibited a specimen of stricture of the sigmoid flexure due to ulceration of the mucous membrane. A diagnosis of obstruction of the gastrointestinal canal in the neighborhood of the pylorus and duodenum had been made. The condition of the patient was so bad that a jejunostomy was performed for the purpose of feeding the patient prior to a more extensive examination of the abdomen. Death occurred after a few days from exhaustion. It was then found that the obstruction was in the sigmoid flexure. Early operative relief

would almost certainly have been accomplished by excision of the gut or by intestinal anastomosis. The second specimen showed a perforated duodenal ulcer close to the pylorus. A time for operation was appointed, but before that time perforation occurred. Immediate operation was then advised as a last resort, but the patient and his friends would not consent. Dr. Roberts believed that a gastrojejunostomy, done a day or two prior to the time of perforation, would have saved this patient's life. Specimen No. 3 was a perforated appendix removed from a case which had come under Dr. Roberts' care about forty hours after an attack of abdominal pain. When he saw the man his pulse was 160 and very feeble. His hands were cold; his face was covered with a clammy sweat, and the abdomen was distended and painful. Believing that operation would almost certainly result in death, Dr. Roberts abstained from even opening the abdomen. Autopsy showed the lower abdomen full of pus, with a gangrenous opening in the appendix big enough to admit a lead pencil. The fourth specimen was a large gallstone, measuring an inch and a half by three-quarters of an inch, from the gall bladder of a woman who for a number of years had suffered repeated attacks of pain in the region of the gall bladder. Operation showed the stomach, gall bladder, liver and omentum to be bound together by old and firm adhesions. The gall bladder was dragged backward until its fundus pointed toward the spinal column. It was entirely filled by this large stone. The patient had, in addition, a bent and adherent appendix from former attacks of appendicitis. The gall bladder was opened, the calculus removed, and the appendix excised. Drainage through the lumbar region was employed and a large drainage tube was introduced through the abdominal incision. The patient did moderately well for about two days and then died from asthenia. The case illustrated the importance of cholecystotomy in the early stage of all cases of gallstone disease. The fifth specimen was a globular gallstone, about three-quarters of an inch in diameter, removed from the junction of the hepatic, cystic and common gall ducts. The patient had great pain, and persistent jaundice, which at the time of operation gave her a dark bronze color. Choledochotomy was required for extraction of the stone and was followed by hepatic and abdominal drainage. The specimens were shown to call attention to the importance of operating on gall-bladder disease, inflammations of the appendix, and obscure lesions of the stomach and intestines early. Dr. Roberts believes that the best results will undoubtedly be obtained in such cases by early exploratory incision, followed by operations for relief, even if such surgical methods are employed before definite diagnosis can be made. He stated that the profession and the public should realize that this is the teaching of modern surgery.

A New Saw for Cranial Surgery.

DR. H. C. MASLAND exhibited a skull saw, which will be illustrated in THE JOURNAL.

DISCUSSION.

DR. JOHN B. ROBERTS said the saw seemed to be a very efficient instrument, and agreed with Dr. Masland that it did not need the guard, since in cutting through bone one can tell by the feeling when it is cut through.

DR. T. H. WEISENBURG did not agree with Dr. Masland that it was not necessary to have the saw set to cut thicker than a quarter of an inch, since he had seen some skulls in which a deeper cut was required. Neither did he agree that it was unnecessary to have a circular incision. The circular flap, in his opinion, is more easily replaced and is better for cosmetic reasons. He further disagreed with Dr. Masland in regard to the matter of time, and referred to Dr. Frazier's operations in the University Hospital, in which he opened the skull in two minutes and seldom exceeded three or four minutes, which Dr. Weisenburg thought could scarcely be improved on.

DR. MASLAND said that the instrument used by Dr. Frazier made an incision an eighth of an inch wide, which does not offer so great a probability of union through the line of incision as a cut one millimeter in width. This also guarantees a minimum waste of bone, and replacement without sinking.

The Limitations and Possibilities of Electricity in the Treatment of Diseases of Women.

DR. BARTON COOKE HIRST has found an advantage in the use of galvanism and faradism in a limited number of diseases of women. As a hemostatic agent, in uncomplicated small fibroid tumors, with no other symptoms than metrorrhagia, it is one of the most efficient. He finds electricity useful also in the treatment of amenorrhea and sterility the result of imperfect development, or atrophy of the uterus. Two illustrative cases were reported in which normal menstruation was restored and conception occurred, following this treatment. In one woman there had been amenorrhea for a year. In the other the menstruation had been reduced to a scanty discharge, lasting less than a day, the result of lactation atrophy. The third indication is to restore tone to a paretic sphincter ani muscle after its restoration by surgical means, in cases in which repeated attempts had been made to restore the muscle, with failure, and in which there had been no contractile power exercised for a number of years. A fourth indication for the use of electric currents was found in certain types of dysmenorrhea associated with a poorly-developed uterus. Local treatment, however, he believes, is very rarely practicable in such cases. This comprises all the conditions in which it can be hoped to accomplish much by electricity.

Toxic Changes in Brain and Spinal Cord Due to Carcinoma.

DR. T. H. WEISENBURG said that the influence of carcinoma of parts other than the brain and spinal cord on the nervous system is becoming better recognized. Metastasis may occur in the brain, where it may be either in the form of a tumor or as an infiltration of cancer cells of the pia of the cortex or of the base of the brain. A case is recorded where basal syphilis was diagnosed, but at the autopsy a metastatic cancer was found. This teaches that whenever cerebral symptoms occur in the course of carcinoma, no matter in what form they appear, metastasis should be thought of in the diagnosis. In the spinal cord, metastasis generally involves the spinal vertebræ, causing a pressure myelitis. Cases are recorded where during the course of the disease such symptoms as mental apathy, dementia, hemiplegia and aphasia occurred. These are undoubtedly of toxic origin. Dr. Weisenburg stated that he has recorded cases of bulbar symptoms and dementia in which a careful microscopic examination of the brain and spinal cord demonstrated alterations in the nerve cells of the medulla oblongata and pons. In another case, where there were no cerebral symptoms, changes were also found in the nerve cells of the cortex. Such findings have not been previously recorded.

CHICAGO MEDICAL SOCIETY.

Regular Meeting, held Jan. 25, 1905.

The President, Dr. John B. Murphy, in the Chair.

The Therapeutic Use of the X-Rays.

DR. WILLIAM ALLEN PUSEY read a paper with this title which will appear in THE JOURNAL.

The Treatment of Lymphatic Leukemia with the X-Ray.

DR. JOSEPH A. CAPPS and DR. JOSEPH F. SMITH reviewed the progress made in this field.

The first case was treated by Dr. Pusey for one month, but without improvement. In 1903 Dr. Nicholas Senn reported a case of leukemia symptomatically cured. The patient presented the typical symptoms of splenomyelogenous leukemia, and had been ill for fourteen months. Treatment was begun daily and was given every other day, through the latter part of January, and during February, March, April and May, and at the time of Senn's last observation, the white count came down to 10,000, and the spleen was almost of normal size. The patient felt perfectly well, but died later with symptoms of toxemia. Cases of lymphatic leukemia treated by Senn, Churchill and Pusey died inside of seventeen months.

The authors reported three cases of lymphatic leukemia treated by the *x*-rays, two of which were of the acute form. One patient died in six days, and the other in ten days. Of

the subacute cases there were two. While the *x*-ray exerted a beneficial effect, it did not control the disease. Better results were obtained in treating the chronic cases, and of these the authors reported three instances. They stated that patients with splenomyelogenous leukemia should receive *x*-ray treatment because they are greatly benefited thereby. They respond more slowly than do patients with chronic lymphatic leukemia. These patients feel that they are cured, but in the light of Senn's case and of other cases reported as symptomatically cured, some of which have since died, physicians must not be too sanguine in regard to pronouncing cures. It is altogether probable that some of these cases are not cured, but that the process is held in abeyance. Oftentimes in leukemia the spleen will diminish in size and the blood count come down under *x*-ray treatment, and the patient, so far as the leukemia is concerned, is very much better symptomatically, but the disease reasserts itself always.

DISCUSSION.

DR. OLIVER S. ORMSBY referred to observations of more than two hundred cases of epithelioma treated by the *x*-ray. The cases that had been relieved most were of the superficial rodent ulcer type. The results were uniformly good. In two cases there was a mild recurrence. Nineteen cases of superficial epithelioma of the lip were treated with excellent results. Psoriasis of the scalp can be removed with the *x*-ray without removing the hair. The results in eczema and in acne rosacea are excellent. In seventeen cases of sycosis the results were good, one-half of the patients being entirely well. In two obstinate recurrences took place. In keloid their results in eleven cases were the same as those mentioned by Dr. Pusey. Thirty-five cases of lupus erythematosus were treated, combining radial with phototherapy, with excellent results.

DR. E. A. FISCHKIN stated that cases of sycosis and keloid reacted beautifully to *x*-ray treatment. He spoke of the idiosyncrasy of different patients to the *x*-ray. He mentioned two patients who had psoriasis, a brother and a sister; the sister was cured after six or eight treatments, with no recurrence after two years. Although the brother has had over one hundred treatments, the psoriasis has increased all over the body. There is no evidence of cure of any of the lesions. This case illustrates that there is a decided difference in the reaction of patients to the *x*-ray.

DR. R. R. CAMPBELL stated that in two cases of blastomycosis which he had treated by the *x*-ray without the administration of iodid of potassium his results had been the same as those of Dr. Pusey. The cases of epithelioma of the lip he had selected for *x*-ray treatment were of the superficial type. In two cases out of twelve, in which there was some slight induration, he failed to get any beneficial results from the *x*-ray. In a case of epithelioma of the lip, in which it becomes necessary to curette, he thinks the domain of the *x*-ray ceases, and the case properly belongs to surgery. His results in lupus erythematosus have not been satisfactory. In lupus vulgaris the *x*-ray is eminently the best treatment. In acne his experience has been gratifying.

DR. DAVID LIEBERTHAL corroborated what the other speakers said in regard to the treatment of acne, lupus vulgaris, acne rosacea, etc., with the *x*-ray. He emphasized the importance of carefully selecting and classifying cases.

Administration of Oxygen Gas.

DR. H. J. BURWASH referred to a paper by Kellogg of Battle Creek, Mich., entitled "Oxygen Gas Per Enema," which was published in 1887. In this paper, Kellogg discusses at length experiments on guinea-pigs, showing that this gas per enemata is readily absorbed, and that dark venous blood is noticed to be immediately changed into bright arterial blood by its application. He, therefore, recommends this method for the treatment of diseases of the liver and digestive organs. He reports many cases, nearly all being of digestive troubles. Dr. Burwash has made a new application of this method by using it in the treatment of the acute respiratory diseases, particularly pneumonia. He first used it in August, 1891, in a severe typhoid case, after failing to resuscitate the patient by the usual method of inhalation. The patient was a young girl, sixteen years of age, who became profoundly toxic, delirious and cyanotic. The gas by inhalation did not appear to revive her from the stupor, and then it occurred to him to administer the gas per enema. He gave her one gallon; after two minutes' duration the respiration became more exhilarated, and the deep cyanosis disappeared. The patient recovered after a very protracted illness.

Since that time he has continued to use oxygen per enema in all his critical cases, especially pneumonia. It is plainly apparent that the introduction of a large quantity of oxygen into the intestinal canal not only neutralizes and deodorizes the noxious gases that are frequently present there, but also introduces oxygen through the portal system to the liver, whose cells are not only stimulated to greater activity, but are nourished as well. Besides this, the already overcharged lungs are assisted in their function of aëration of the blood.

NORTH BRANCH PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, held Dec. 9, 1904.

Dr. Samuel Wolfe in the Chair.

Report of a Case of Pancreatic Cyst.

DR. M. J. KARPELES reported the case of a male, aged 68, with a negative family and personal history. He first complained of discomfiture in the left side, the principal symptoms being marked nausea, with occasional vomiting of a dark green, non-odorous, thin watery fluid, in an amount out of proportion to that ingested; general pruritus, especially of the hands; dyspnea on least exertion; profound weakness; epistaxis; colicky pains, and frequent attacks of diarrhea and insomnia. The stools were found to be free from fat. The urine showed a low specific gravity, a trace of albumin and the presence of bile. On physical examination a tender area was elicited at the costal margin in the left mammillary line. Ten days later, it was possible to outline in this region a mass the size of an egg which, at the time of the patient's death, about three weeks later, involved the left half of the epigastrium, the left hypochondrium, the umbilical and the left lumbar regions. As this fluctuating mass, which was diagnosed as a pancreatic cyst, enlarged, the gastrointestinal symptoms proved more rebellious, the jaundice became more marked, the insomnia required hypnotics, and the general discomfiture increased. In view of the marked prostration and jaundice, operation was not deemed advisable. At autopsy a large pancreatic cyst was found, containing about two liters of a grayish fluid. The cyst wall was thin and the inner lining smooth. It was impossible to determine the part of the gland in which the cyst originated.

DISCUSSION.

DR. DAVID RIESMAN stated that in the differential diagnosis we should consider (1) cystic gall bladder; (2) hydronephrosis; (3) echinococcus cyst in women, and (4) ovarian cyst. He stated that jaundice is not so prominent in cases of cystic gall bladder, but may be present. In hydronephrosis with renal crises and long history of pain, floating kidney should be taken into consideration; ovarian cyst should be differentiated by vaginal examination, and echinococcus cyst by the patient's habits. In the case reported, exhaustion and epistaxis rendered operation inadvisable, although possibly tapping of the sac, after sewing or stitching it to the abdominal wall, might have been of value, if the epistaxis had not been so great. Where the tumor occurs in the epigastrium, extending into the left hypochondrium, and is accompanied by pains in the celiac plexus, these symptoms are sufficient to warrant a provisional diagnosis of pancreatic cyst. The danger of fat necrosis occurring by reason of the fluid getting into the abdominal cavity is quite small, although cases have occurred in which the tumor evacuated itself into the intestinal canal. The surgical treatment is the one that should be employed.

The Etiology and Diagnosis of Cholelithiasis.

DR. WILLIAM RUOFF stated that no common etiologic factor could be assigned to all cases. Age is an important factor, the majority of cases occurring between the ages of 40 and 60, and the more frequent occurrences in females he laid to the mode of dress and pregnancy. The influence of age might be manifested through the loss of contractile power of the bladder, thus favoring retention and the lack of resisting power of the body fluids. He felt that too much importance is attached to temperament, gluttony, excessive indulgence in meats and fats, heredity and climate. He discussed in detail the different varieties: (1) Pure cholesterin stone; (2) laminated cholesterin stone; (3) ordinary gallstones; (4) mixed bilirubin-calcium stones; (5) the rarer forms, such as (a) amorphous stones, resembling pearls; (b) chalk stones; (c) concretions surrounding foreign bodies; (d) casts of bile ducts. He then considered in detail the infective causes through the medium of the portal circulation and through an ascending infection from the common duct, and the influence of appendicitis, salpingitis, peritonitis, etc. The diagnosis was considered under three heads: (1) cases in which no symptoms have been produced and which are usually discovered at autopsy; (2) transitory symptoms of dyspepsia and abdominal and liver symptoms; (3) those cases causing severe and, at times, almost fatal illness, which are most frequently met with. The symptoms of jaundice, vomiting, hepatic and cystic infection were considered, as was also the symptom of impaction.

Gallstone Disease, Remote Effects and Treatment.

DR. SAMUEL P. GERHARD stated that our efforts must be mainly surgical; that the gallstones, as long as they remained in the bladder, are perfectly harmless, but that the danger is due to the liability of accidents in their passage through the common duct, considering under this head cholecystitis, empyema and gangrene, pancreatitis, fistula into a neighboring organ, peritonitis, etc. The medical treatment should be prophylactic, directed to preventing rather than curing the disease.

DISCUSSION.

DR. DAVID RIESMAN stated that the youngest patient he had ever seen was 11 years, and the oldest 70 years. He said that the essential features in the diagnosis are pain in the region of the gall bladder below the costal cartilage in the right parasternal line, although the location of the pain is not absolutely necessary, and vomiting and jaundice. He referred to the case of a man, 37 years of age, who had suffered from cramplike pains for a number of months, chiefly in the epigastric and left hypochondriac regions, unassociated with vomiting. He had lost 20 pounds in weight. At operation, gallstones were found in the cystic duct; there was no jaundice and no tenderness in the gall bladder region. He also referred to several other cases in which the characteristic symptoms were not present. In his experience the *x*-ray has not been of value in the diagnosis of these cases. He referred to the method of Dr. DaCosta of placing a cylindrical pad under the patient, so that the patient forms an inclined plane with the table, and then by gently rubbing with the hand, an enlarged gall bladder may be felt. Referring to the pathogenesis, he stated that, without infection, the passage of the stone would cause inflammation of the gall bladder and ducts. He believes that many of the cases which were called biliousness were really due to gallstone attacks. He referred to the occurrence of the condition after infectious diseases, and referred to a case diagnosed as duodenal ulcer, which on operation proved to be an infected gall bladder. The persistence of jaundice should suggest a stone or malignant disease. He expressed the belief that the surgical treatment would assume the same place it had in appendicitis.

DR. JOHN B. DEAVER stated that he had never seen nor operated on a case of gallstones in a colored subject. He divided the condition into two classes: cholelithiasis of the gall bladder and affections of the common duct. The pain and tenderness in the epigastrium are less frequent in disease of the common duct than in gall-bladder inflammation. He believes that the pain in the majority of instances is due to infection. Jaundice as a diagnostic factor is very misleading. He never operated on acute cases, but if the symptoms persist, then the value of operation must be considered. The *x*-ray is not of much value in diagnosis. He did not recommend operation in cases of acute common duct obstruction. The operation, if performed, should be done early. He does not approve of operating in private houses. He emphasized the value of careful preparation of the patient prior to operation, including careful urinalysis. Stomach analysis is not of much value, except in cases of acute leucocytosis. He favored drainage of the gall bladder rather than its removal, unless there was some indication for the latter procedure.

DR. WILMER KRUSEN referred to the case of a woman, 32 years of age, who had suffered with gall-bladder disease for a period of eight years without the true condition being suspected. The *x*-ray failed to reveal the seat of the trouble. At the operation for removal of a cystic ovary, forty-three stones were removed from the gall bladder and the woman made a good recovery. Another case was reported, in which an operation was done for appendicitis and the appendix was found not to be diseased. Two days later the patient had a pulse of 140, temperature of 103 to 104, and a marked enlargement over the gall bladder. Operation showed an empyema of the gall bladder, and 420 stones were removed therefrom, but the patient died within twenty-four hours from general peritonitis. He believes that gall-bladder disease is as much a surgical procedure as appendicitis, and that the sooner the operation is done the better for the patient.

Travel Notes.

AN INTERSEMESTRAL EXCURSION.

LEWELLYS F. BARKER, M.D.
CHICAGO.

(*Continued from page 497.*)

Vienna.

One of the first questions a medical traveler is likely to be asked by his colleagues on his return to America is: "How did you like Vienna?" And a layman hearing that a physician has spent some months in Europe almost invariably remarks, "I presume that you spent most of your time in Vienna," such a fame has that city had as a medical center. Although in Europe twice before, on neither trip had I been able to visit the Austrian capital; I was all the more anxious, therefore, this time to arrange to visit the city and its hospitals and to meet some of its famous medical men.

UNIVERSITY OF VIENNA.

The University of Vienna, founded as long ago as 1365, compels on account of its remarkable history the veneration and respect of every visitor. And in that history the medical faculty has played a very important part, not only in the development of medical teaching and practice, but also in the forwarding of the interests of science and arts in general. One has only to read that best of books on medical education, Billroth's "Ueber Lehren und Lernen," to become impressed with the influence of the medical faculty on the progress and development of the University of Vienna as a whole. Great organizing minds like that of the distinguished Van Swieten are rare, even in the greatest of universities; fortunate are those institutions within which they occasionally develop. One such man may shape the destiny of a university for generations; this has been true in Vienna, and it is pleasing to find that the Viennese, conscious of their debt to a great master, have in more than one artistic movement done their best to perpetuate the memory of Van Swieten in the city he loved and for which he worked.

VIENNA AS A MEDICAL CENTER.

While Vienna has long enjoyed the reputation of being the most important medical center in Europe, and is still doubt-

less very great, there are some who think that it can no longer justly lay claim to the first place. That honor, they think, now belongs to Berlin. The latter city has in the last ten years made enormous strides forward; one would scarcely believe the change without actually observing it for himself; Vienna seems—some have even dared to say—a little provincial by comparison. The explanation in all probability lies in the growing prosperity of Germany, the increase in material means in the capital of the German empire, the determination to seek the best men for university chairs irrespective of their nationality, and the encouragement of original research in the various departments rather than directing too much effort toward increasing the number of under graduate students and of the less advanced class of postgraduate workers. Vienna, it is asserted, is not as prosperous a city now as Berlin, the finances of Austria are not in as satisfactory a condition as those of Germany, the money available for university purposes is less,[2] there has been, these critics hold, a tendency to "in-breeding" in the faculty, the average Austrian and especially the average Viennese is no lover of travel, is prone to be satisfied with "good old Vienna," and to know but little and care less of what goes on in the world outside it; finally, it is maintained that, with notable exceptions, of course, the efforts of the faculty have been devoted too exclusively toward teaching the known and too little toward the discovery of the hitherto unknown. But even if these critics are right, it should be remembered that it is difficult to make a statement which is just in general without appearing to be unjust in particular. There are undoubtedly in Vienna to-day a number of the most energetic and productive scientific investigators that exist in the world, widely-traveled men of broad training, men with the highest ideals and with great capacity for work who are demonstrating constantly their right to positions in the front rank of medical research.

The material for clinical, anatomic and pathologic work in Vienna is superabundant; its concentration in and about the huge *Allgemeine Krankenhaus* has made medical work there very convenient for the student. Recently a more centrifugal tendency has been noticeable; the work at the Rudolf Spital, the Kaiser Franz-Josef Spital and the Kk. Wilhelminer Spital is rapidly increasing in importance.

Anatomy and histology are well taught in Vienna in the two anatomic institutes, one under the direction of Prof. Carl Toldt, the founder of modern conceptions concerning the development of the alimentary tract and the peritoneal cavity, and the author of the magnificent anatomic atlas which bears his name, the other under the leadership of Prof. Emil Zuckerkandl, well known through his book on topographic anatomy and his original researches on the comparative anatomy of the brain. Dalla Rosa, Tandler and Grosser are active members of the staff. The histologic courses are ably conducted by Professor von Ebner and his assistants, Schaffer and A. Rabl. The anatomic museum is rich in beautiful preparations; the amusing skeleton groups designed and erected by Hyrtl, are among the curiosities to be seen there.

Toldt's atlas, like Spalteholz' Atlas of Human Anatomy, is a triumph of modern bookmaking art; these two works have gone far and will go farther toward making anatomic ideas more exact than ever before and toward unifying and simplifying anatomic nomenclature. The illustrations in both atlases are excellent and are invaluable not only as an aid to dissection, but as a reference book in the practical work of the physician and surgeon. Every practitioner would find it profitable to own and use at least one of these atlases. Both Spalteholz and Toldt have already been translated into English.

Physiology (under Professor Exner's direction) is just moving into a fine new laboratory in Vienna. The new building is adjacent to the older structure; the latter is now to be given over to neurology (under Obersteiner) and to one or two other sub-departments.

It seemed to me that the best organized and most actively productive department in the medical faculty of the University of Vienna was that of pathology, with Richard Paltauf as professor of general and experimental pathology and Anton Weichselbaum as professor of pathological anatomy. Along with these two well-known investigators are associated Gustav Gaertner, Arthur Biedl, H. Albrecht, Anton Gohn, Richard Kretz, F. Schlangenhaufer, Rud. Kraus, H. Winterberg, O. Stoerk, and K. Sternberg, a list of names from which the fame of the university has really much to hope. Biedl's experimental studies on the nervous system, Kretz's investigations on the liver, and Kraus' original researches on bacteriological problems and curative serums are among the most interesting of current conduction. The accounts of their results have to be read by all who keep abreast with progress in these fields.

THE SEROTHERAPEUTIC INSTITUTE.

Professor Paltauf is also the director of the State Serotherapeutic Institute of Vienna and one of the most interesting forenoons I spent in the city was devoted to visiting it in his company. The institute is divided into two parts, one for the strictly scientific work of the institute and the business office, the other for the preparation of serum in large quantities. The former should be situated close to other scientific institutes and close to the postoffice, express office and telegraph station; the latter should be placed where room for extensive stables is available, and where the animals can be exercised in the open air. These different needs were met by establishing the scientific work of the institute and the business office for the distribution of serum temporarily in the bacteriologic institute of the "Rudolfstiftung," while the department for the preparation of serum on a large scale was instituted in the Court of the Kaiser Franz Joseph Hospital in the extreme outskirts of the city. Here stalls have been built for 50 horses, a piece of ground has been set aside for a riding ring in which the horses are saddled and ridden for a certain length of time each day for exercise, and a very complete serum-institute, occupying an area of 360 square meters, has been constructed. On the south side of the latter, an operating room 51 meters square has been built. The description of the Institute given by the resident assistant, Dr. Jellinek[3], should be helpful to any planning a similar structure.

In drawing the plans for the institute, the principle of separating as completely as possible from one another the individual departments with their laboratories for the different kinds of work was adhered to. The various staircases together with the entrance corridor occupy the middle of the building; the machine-rooms are in the cellar; on the ground floor on the left are the rooms for collecting and preparing serum, on the right the laboratories for chemical work and the small rooms used for testing and standardizing the sera. Upstairs, on the right, completely isolated from the other parts of the building, are the laboratories for bacteriologic and histologic work, with all necessary equipment; on the same floor, on the left, are two apartments for resident assistants. Each part of the building has its separate entrance from the central halls.

The institute has been fitted up with the most modern appliances in the way of thermostats, sterilizers, autoclaves, vacuum-pumps, etc. The arrangements for leading the horses in and out of the operating room and for drawing the serum have been made most convenient and simple. The blood obtained by sterile puncture of the vena jugularis is received in sterilized glass cylinders (provided with an ingenious cover, so arranged that the jars can be filled without entrance of air), and placed in a cooling-room for two days to let the serum separate well. The serum is then transferred under aseptic precautions into large flasks and again allowed to sediment for six weeks in the cool room, nothing being added to the serum as yet. By this time the serum has become quite clear; through quiet standing nearly all of the blood corpuscles and flocculi of fibrin have fallen to the bottom. The serum is

2. The income of the University of Berlin for the year 1903 was 3,406,914½ marks; that of the University of Vienna for 1897 was only 1,159,594 florins.

3. Jellinek, O.: Die Abteilung für Serumgewinnung des stadtserotherapeutischen Institutes in Wien., Wien. klin. Wchnschr., 1903, pp. 1403-1405.

then transferred to other flasks, in which it is treated with carbolic acid (0.5 per cent.), a precipitate of albumin, phosphates and cholesterin forms, and is filtered off, and the filtrate is preserved in large, flat-bottomed flasks in the cooling chamber.

The chemical laboratory has been well-planned and though not large, has in it everything necessary for the work, including hood for gases, work tables, sets of reagents, precision-balances, water and gas, vacuum-pump connection, compressed-air connection, centrifugal machine and contact for electrical power for motors.

The bacteriologic laboratories have broad, high windows, lighted from the north; the work tables at the windows rest on iron brackets set into the wall, so that the floor-space remains entirely free; the tables are covered with white enamelled lava, a material which resists chemicals and dyes better than glass or oak, and which on account of its white color makes for cleanliness. The largest thermostat measures nine square meters and is two and one-half meters high; it is heated by gas, can be exactly regulated for any temperature between 33 and 40° C.; that it works well is shown by the curve of the self-registering thermometer attached. A special wash-room has been provided for this laboratory with its own sterilizing apparatus, in order that tubes, glass vessels and other objects used here need not be removed for cleaning to other parts of the building; this is one of the many safeguards against contamination of the laboratory in which the serum is prepared. The machinery in a sero-therapeutic institute is rather complex and a good mechanic is essential to the establishment. A four-horse power electric motor runs a small ammonia refrigerating machine, and a half-horse power motor runs a salt-water pump which pumps the concentrated solution of magnesium chlorid cooled by the machine to —10 degrees C. from the refrigerator to the tubes which cool the rooms in which the serum is kept in the parterre. To the larger motor can be attached when desired the air-pump, which supplies air under pressure on the one hand, and a vacuum-conduction on the other for use in the laboratories; the same motor also drives a pump for hot-water circulation in the building. A vacuum apparatus for concentrating serum, or for evaporating it to dryness, is situated in a special room near by. Inside it are a number of horizontally placed iron plates, in which hot water circulates. The serum in a thin layer in flat sterile glass evaporating dishes is placed on these iron plates; the apparatus is closed air-tight, and the air inside exhausted by the vacuum pump; the temperature is maintained at from 27 to 30 degrees C., and the evaporation goes on with great rapidity and without any injury to the labile constituents of the serum. After the evaporation has been carried far enough, filtered air is allowed to enter the apparatus and the product removed. When necessary the whole apparatus can be sterilized by passing a stream of superheated steam through it.

A large Buchner's press, capable of exerting a pressure of 350 atmospheres, forms a part of the outfit. My attention was also drawn to a special kind of protective paint which has proved very serviceable. As is well known, it is extremely difficult in bacteriologic workrooms to find a covering that will stand steam sterilization. In the Vienna Institute a Dutch-French substance called "ripolin" has been found very satisfactory. It has often been subjected to temperatures of 100 degrees C., and while the original white color has turned a little yellow, blistering or scaling has not occurred. The ripolin is therefore far more durable than Japan black or enamel paint.

The stables for the horses are models of cleanliness and order. It is discouraging to an American to think of how expensive it would be to keep the horses and the stalls at home in the princely way they are cared for here. It is easily possible in Austria and Germany to obtain a skillful, conscientious *Dienerschaft* with a moderate money-outlay; in America the cost of the same skill and help is almost prohibitive. The newer stables are so constructed that they can be subdivided into small, completely isolated compartments; the desirability of this arrangement is obvious when one remembers the necessity of isolating newly purchased horses until they have been proven to be free from disease, the separate stabling of especially inoculated animals, and the quarantine of infected animals. The institute has its own blacksmith constantly in attendance. Regular weekly visits are made by a veterinary surgeon, and he may be called on at any time in case of need. Professor Paltauf told me that many of the best horses used in serum manufacture developed amyloid; they have hemorrhages into the liver, become icteric and die. Nearly a dozen fine animals have been lost from this cause.

In view of the disappointing results with antistreptococcus serum elsewhere, it was a surprise to me to find that the particular antistreptococcus sera prepared in Vienna under Paltauf's direction are highly valued. The opinion there seemed to be unanimously in favor of the use of Moser's serum in scarlet fever and of Paltauf's new serum against streptococcus infections of the puerperium. The difference between these sera and that of Marmorek is this: The Vienna sera are prepared by direct inoculations of streptococci of human origin, the serum for scarlet fever by immunization against streptococci from the throats of actual scarlatina patients, the serum against puerperal infection by immunization against streptococci taken directly from human puerperal infections. The Viennese believe that the passage of a race of streptococci through animals makes it incapable of yielding results such as they get by their direct inoculations from human cases. An assistant of Chrobak's at a meeting of the *Aerztliche Verein* which I attended, reported a series of puerperal infections treated with the new serum, in which the favorable results obtained were truly striking. Every case in the series in which the infection was due to streptococci alone, it is asserted, was cured; bacteriologic study of the few fatal cases demonstrated mixed infections with other bacteria.

THE AERZTLICHE VEREIN.

The *Aerztliche Verein*, by the way, is superbly housed in Vienna, and it says much for the enterprise, generosity, and artistic sense of the medical profession of that city that it should have provided itself with such a home. The reception-rooms, auditorium, and library are admirably arranged, and it is not the practical needs alone of the busy medical men that have been considered; the exquisite furnishings, the balustrades, the group of busts of famous Vienna medical men, give the place an air of elegance and ease. I could not help but wish that the profession of Chicago and of other great American cities might soon, with the help of the excellent organization which has recently been going on in connection with the medical societies, see its way clear to supply the money for and to build similarly practical and beautiful buildings. The advantages of a permanent headquarters for the profession in a large city are almost incalculable. The benefits derived extend in a whole series of directions—not the least important of which is the social. Such a professional home goes far to elevate the standards of a group of men; it is an influence which tends to dignify, ennoble and refine the profession. At the time of my visit the Vienna gynecologist, Professor Chrobak, was president of the *Verein*, and Professor Paltauf was its secretary.

(To be continued.)

Therapeutics.

[It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns.]

Acute and Chronic Nephritis.

In considering the treatment of nephritis it must be ascertained whether or not the condition is an acute or a chronic

process; and if acute the cause of involvement of the kidney structure must be taken into consideration in outlining the treatment. If the process is a chronic one the clinical findings should show whether the tubal system is diseased to the greater extent or the toxic substances have chiefly involved the vessels along with an increase in the connective tissue formation; in other words, whether the diseased condition is chiefly parenchymatous or interstitial. The prognosis, of course, depends on whether it is acute or chronic. Even in the acute form it is a difficult task to forecast the outcome of the patient, as all patients are not alike, so for this reason, according to Sir Dyce Duckworth in the *Clinical Jour.*, London, the prognosis of any form of nephritis should be guarded, as all patients have their peculiarities and temperaments, diatheses or qualities which are peculiar to them. One man has a tendency in one direction and another in another. There is no medicine for disease, as this author tersely states, but for individuals. We do not treat disease, but patients. Some patients are much more vulnerable than others, especially those of a strumous diathesis. This sort of individual is vulnerable at all points, and if such a patient suffers from an acute nephritis the prognosis is not good, and may end in chronic nephritis. On the other hand, if a man suffering from acute nephritis is of good constitution and can obey the instructions of his physician and not expose himself to wet and cold, and observes care in regard to his diet the prognosis for complete recovery is good. In the treatment of acute nephritis the author recommends a warm bed, bread and milk diet, barley water and whey. Of the latter the patient may take two or three pints a day. He may also have arrowroot, bread and butter, crackers, and if he is very hungry he may be allowed a small amount of mashed potato. These patients should not have meat nor strong food.

If the urine contains much blood, as may be the case in acute nephritis, dry cupping should be employed. If he is strong, the author recommends that wet cupping be employed, and that from 12 to 15 ounces of blood be taken from the loins in this way, as there is direct vascular connection between the skin of the loin and the interior of the kidney. Warm poultices over the loins are also of great service. Antimony in the form of the wine is very good given in one-half dram (2.00) doses, combined with spirits of nitrous ether, and a solution of ammonium acetate.

At the onset of the disease, a calomel purge should be given, two grains combined with half a dram (2.00) of compound jalap powder and afterward give two teaspoonfuls of a confection containing from a half to one dram of the compound jalap powder. This treatment, according to Duckworth, clears the renal tubes and diminishes the dropsy of the limbs and face. The patient should be confined to the hospital until all the albumin has disappeared from the urine. Iron is another preparation which is of value in these cases given in the form of ammonio-chlorid of iron or Basham's mixture, and may sometimes be combined with digitalis. Fuchsin is also recommended in doses of from one to ten grains (.06-.65) daily, as it sometimes decreases the amount of albumin, and at any rate does no harm if it does no good.

CHRONIC BRIGHT'S DISEASE.

Croftan, in the *Ill. Med. Jour.*, is of the opinion that Bright's disease is produced by circulating toxins and that the cardiovascular changes precede the kidney changes, as the result. The source of these toxins is two-fold, the gastrointestinal tract and the products of metabolism. The liver does not functionate properly, and as a result there is incomplete elaboration of the food before it reaches the circulation. The management of a case of Bright's disease according to Dr. Croftan should be considered under: 1, prophylactic treatment; 2, symptomatic, directed primarily against the development of cardiovascular changes, and secondarily, against the nephritic changes. 3. The treatment of the patient as a whole.

TO PREVENT INTESTINAL PUTREFACTION.

The diet should be properly guarded and the stomach washed out if necessary. The author recommends especially in this connection the use of zinc sulphocarbolate given in doses of one grain (.06) each at frequent intervals, together with about twenty grains (1.30) of bismuth daily. If the zinc preparation is used in sufficiently large doses it will prevent the black stools of the bismuth, as it checks putrefaction, and thus prevents the formation of bismuth sulphid. The color of the stools, therefore, should govern the amount of the zinc salt given daily and when this is obtained the urinary evidence of bowel putrefaction will disappear, as shown by the reduction of indican, etc. The bile salts are also of value in this same connection.

To strengthen the heart and to reduce the blood pressure, small doses of digitalis are recommended, one drop (.06) of the tincture, three times a day, is a sufficiently large dose to render the heart less susceptible to the disturbing stimulation of the circulating toxins. Large doses of digitalis are contraindicated. Nitroglycerin is the best remedy to reduce the blood pressure. As adjuvants to these preparations the hot bath, rest in a warm bed, life in a warm, dry climate and massage are of value.

The author believes in a liberal diet and one which will least irritate the kidney and at the same time adequately nourish the patient. He condemns the use of an exclusive milk diet, as it must be given in enormous quantities to properly nourish the patient. If administered in such large quantities it causes flooding of the heart and arteries with water, and thus overtaxes them. It is deficient in iron, and in time leads to deficient hemoglobin, and its use, sooner or later, becomes monotonous. The diet, therefore, should be a mixed one, and should contain a moderate amount of albumin.

The amount of water should be restricted; for the kidney, when it becomes diseased, stops eliminating water as the first thing, consequently the practice of "flushing out" the kidney should not be encouraged. The chief advantage of "sweating" is to get rid of the water.

WITHDRAWAL OF SODIUM CHLORID.

The nephritic kidney fails in properly eliminating sodium chlorid, and, therefore, favors edema, as the salt draws water from the tissue by the process of osmosis. Consequently, the ingestion of salt should be restricted. The surgical treatment of decapsulating or splitting the capsule is condemned by this author.

USE OF WATER IN NEPHRITIS.

Broadbent, in an abstract in *Amer. Med.*, states that the use of water depends on the time when it is taken. A glassful taken night and morning makes it effective as an eliminant. Specific growth of the urine is a more important factor in this disease than the amount of albumin. The tension of the pulse is an indication in the prognosis and treatment. When a high tensioned pulse is present he employs a mild mercurial aperient. According to his statement, the effect on the arterial tension of a single grain of a mercurial preparation with slight aperient action is much greater than repeated liquid motions induced by saline; and the renal elimination is increased by the mercurials. This author believes, also, that the starting point of chronic nephritis is some impurity in the blood which acts as an irritant, that by its elimination the renal trouble may be prevented, and that calomel aids in this elimination. Acting on the basis that uremic convulsions are caused by interference with the cortical circulation of the brain, he frequently advises venesection in this condition, but when there is only threatened uremia he orders free purgation by calomel, which usually causes the symptoms to disappear, and the tension of the pulse to be reduced.

SURGICAL TREATMENT.

An account is given in the same periodical of six cases of Bright's disease operated on by P. Rosenstein, and decapsulation of the kidney performed with negative results in every case. The author's conclusions are as follows: Decapsulation of the kidney in grave Bright's disease is a dangerous operation; a permanent cure has not been recorded in any case; improvements were noted, but in one of the improved cases the albumin and casts continued to exist, only the edema disappearing; in the other, headache and scotoma persisted.

INDICATIONS FOR TREATMENT.

The indications for treatment of chronic Bright's disease may be summed up as follows:

1. Early in the disease, to reduce the effect of the toxic substances, in the circulation, on the heart, arteries and kidney substance.

2. When the arterial tension becomes pronounced, to use means to reduce it.

3. Support the heart in well-advanced cases and promote elimination by bowels, skin and kidney.

In carrying out the first point the diet should be light, non-irritating, but not confined to a strictly milk diet. It should include well-cooked vegetables and a small amount of farinaceous and animal food; at the same time produce free elimination by the bowels. The arterial tension may be lessened by the use of calomel aperients and nitroglycerin. To check the progress of arteriosclerosis, potassium iodid is recommended by some authorities.

In the treatment of the anemia Weir-Mitchell recommends large doses of the tincture of ferric chlorid, from 30 to 60 minums (2.-4.) three times a day.

To support the heart early in the disease, caffein, spartein sulphate or moderate doses of strychnia are of value. Later in the disease, when the heart has become greatly enlarged as the result of its efforts to overcome the great tension in the arteries and vessels of the kidney, strophanthus and later digitalis are necessary. Strophanthus has the advantage over digitalis in that it is a good heart stimulant and does not contract the arteries as does digitalis, but it has the disadvantage, as stated by some authorities, of irritating the kidneys. The ordinary pill of calomel, squills and digitalis is a valuable combination in the treatment of this disease.

Hydrogen Dioxid in Dyspepsia.

Gallois and Coureoux of Paris have been studying the action of hydrogen dioxid on the digestion, experimenting on dogs with a Pawlow fistula. They claim that it has a pronounced effect in increasing the amount of gastric juice secreted and the proportion of free hydrochloric acid, thus secondarily enhancing the digestive power of the gastric juice, the proportion of pepsin being always higher than under other conditions. Clinical experience also showed that it arrested the vomiting of pregnancy, the effects not being apparent at once, but suggesting that it removed the cause. This seemed to be the case also in certain gastrointestinal troubles, especially hypopepsia and diarrhea. As it combines the properties of promoting digestion and disinfecting the bowels, it is thus especially indicated in hypopeptic dyspepsia with abnormal fermentation, and is particularly useful for infants. The results seem to be better the more recent the onset of the diarrhea. They add in their article in the *Gaz. Med. Belge*, Jan. 5, 1905, that a Russian physician, Novicor, prescribes it in dyspepsia in the formula of 6 gm. (℥iss) of hydrogen dioxid at 12 volumes; 85 gm. (℥iiss) of distilled water, and 15 gm. (gr. iv) of syrup of orange flowers, giving a tablespoonful every two hours. They prefer to give it in milk or water, 10 drops of the dioxid to 100 gm. (qt. i) of milk, for infants; for adults, about a tablespoonful in a quart of water, sipped as a beverage.

Atropin in Too Strong Solution.

Our attention has been called to an error. An abstract on "the treatment of purulent ophthalmia," Jan. 28, 1905, was quoted from *American Medicine*, Dec. 31, 1904, in which the statement is made that "a 4 per cent. solution of atropin can be used in the eye." It is probable that "4 grains to the ounce" is what was meant.

Medicolegal.

Duty of Injured Person.—The Supreme Court of Illinois says, in Chicago City Railway Company vs. Saxby, a personal injury case brought by the latter party, that it was the duty of such party to use reasonable care to effect a speedy and complete cure of the injury which she sustained by being thrown on the street from the company's car, and, to that end, she was required to exercise reasonable care to employ physicians of ordinary skill and experience to treat her, and other means to effect a cure of her injuries. She was not, however, required to employ the highest medical skill which might be found. All the law required was that she exercise such prudence as men and women of ordinary judgment, under like circumstances, would exercise in the choice of physicians and the means to be used to effect a recovery. She was not an insurer, bound to act at her peril; and if she exercised reasonable care in selecting her physicians, and in the employ of other means for her recovery, if her physicians made a mistake in the treatment applied by them to her, or by the means employed failed to effect a cure, then she might recover for the entire injury which she had sustained, as the law, if the injured person uses ordinary care in selecting a physician, and in the employment of other means to effect a cure, regards an injury resulting from the mistake of a physician, or from a failure of the means employed to effect a cure, as a part of the immediate and direct damages which naturally flow from the injury. If it be conceded that she had tuberculosis in her system, and that the same was developed in the knee by reason of the injury thereto, or from the treatment she received in the endeavors made to effect a cure of the fracture of the neck of the femur, it could not be said that the diseased condition of the knee was not a consequence which naturally and ordinarily might not follow as a result of the injury caused by the negligent act of the company.

Admissibility and Use of Skiagraphs.—The Supreme Court of Illinois says, in Chicago and Joliet Electric Railroad Company vs. Spence, a personal injury case brought by the latter party, that, as the case might be again heard, it was necessary it should consider the insistence that the trial court erred in permitting the introduction in evidence of a skiagraph, or *x*-ray photograph, of a portion of the chest and body of the party suing. The skiagraph was made by an expert, who testified he was an *x*-ray expert, and was regularly engaged in taking such photographs for physicians; that he took the negative from which the photograph was developed, and that he developed the photograph; and that it was an accurate and correct representation, etc. It was intended to show by the skiagraph that the party's heart had been displaced, that the walls of that organ had become thick, and that an abnormally heavy tissue had formed on the walls of his heart. The testimony of the *x*-ray expert who had taken the skiagraph tended to show the picture correctly represented the condition of the heart of the party. Photographs taken by the *x*-ray process are admissible in evidence after proper preliminary proof of their correctness and accuracy has been produced. And the Supreme Court thinks the testimony of the *x*-ray expert who made the skiagraph was sufficient to justify the court in ruling that the picture should be admitted in proof. Subsequently, when the company was introducing testimony in chief, another *x*-ray expert was produced in its behalf. This witness gave testimony tending to show that the skiagraph had not been properly taken, and expressed the opinion that the picture was of little or no value as a representation of the heart and other portions of the body of the party suing. But the court was not asked to exclude the picture because of this adverse criticism; nor does the Supreme Court think the motion to exclude should have been granted, had it been interposed. It further says that it was not error to allow the jury to take the skiagraph with them when they retired to consider their verdict. Paragraph 56 of the practice act authorizes "papers read in evidence, other than depositions," to "be carried from the bar by the jury." "Papers in evidence" clearly embrace photographs or skiagraphs offered and received in evidence. One of the definitions of the word "read" given by Mr. Webster is "to discover or understand by characters, marks, features, etc.; to gather the meaning of by inspection; to learn by observation." Photographs or skiagraphs produced in evidence on a trial before a jury are, within this definition, "read" in evidence, and may be taken by the jury on their treatment to consider and deter-

mine the cause. 12 Ency. of Pl. and Pr. 591, 592; Barker vs. Perry, 67 Iowa, 146.

Liability of City for Smallpox Expenses.—The Appellate Court of Indiana, Division No. 1, says, in City of Frankfort vs. Irvin, that the statute of that state makes the mayor and common council of an incorporated city, not having a board of health by statute or ordinance, a board of health for the city. The record in this case contained evidence from which it could be said that there was some danger of an epidemic of smallpox in the city. At a special meeting of the common council, called to consider the situation, a special committee was appointed, consisting of three councilmen, one of whom was designated as chairman, and to this committee was referred the matter of looking after the smallpox in the city. It appeared that soon afterward there were a number of cases of smallpox in the city, and that most of the acts done with reference thereto were done by the chairman of this committee. It did not appear that this chairman did anything that the city council, acting as a board of health, might not have done itself. It did not appear what authority was given this committee, or its chairman, in the matter; but it did appear that the city ratified a part of the work of this committee by afterward paying bills contracted in relation to the management of the pesthouse. The court thinks it appeared from the evidence that what this committee and its chairman did was one entire transaction, which should be repudiated or ratified as a whole. It says that the statute makes it the duty of the board of health to take prompt action in all cases to arrest the spread of contagious and infectious diseases. It is left to the discretion of the board as to how this may best be done. What power the board has, as against the individual, to confine a person afflicted with smallpox in a pesthouse, the court says that it had nothing to do with in this case. The board took such measures as it thought best to protect the health of the people at large, and was liable for such expenses as were properly attributable to measures taken for the prevention of the spread of the disease. And the court thinks it can be said that the employment of a nurse to care for a person afflicted with smallpox is an essential precautionary measure to prevent the spread of the disease. Under the circumstances disclosed by the record, the common council, acting as a board of health, could have legally contracted with a party for his services as a nurse. Such a contract made through the agency of a committee or other authorized person is no less binding than if made by the city itself. The extent of the authority of the person or persons empowered to act must necessarily depend to a large extent on the conditions existing in the particular case. It was immaterial that the pesthouse was located outside the city limits. The fact that it is the duty of the overseer of the poor, and not of the city, to make provision for poor and indigent persons, does not relieve the city from liability for necessary expenses incurred by it in preventing the spread of the disease. Nor does it prevent the city from legally contracting to pay the services of a person who assists in the burial of a person who has died of the disease while under the control and charge of the city's health board. The proper and prompt burial of a person who has died of smallpox may be as necessary in preventing the spread of the disease as the proper care of a person while afflicted with the disease.

Current Medical Literature.

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

American Medicine, Philadelphia.

February 4.

1 History and Development of Surgery During the Past Century. (Continued.) Frederic S. Dennis, New York City.
2 *Some Further Experiments on Rectal Alimentation. David L. Edsall and Caspar W. Miller, Philadelphia.
3 *Diagnosis of Tuberculous Cavities in the Lung. Herman B. Allyn, Philadelphia.
4 *Diet After the Age of One Year. J. P. Crozer Griffith, Philadelphia.
5 Acute Postoperative Thyroidism; Report of a Case; Recovery. S. Edward Sanderson, Detroit.
6 Fibrolipomatous Tumor of the Pharynx and Larynx. E. Fletcher Ingals, Chicago.

2. **Rectal Alimentation.**—Edsall and Miller have continued their experiments in the matter of rectal feeding, especially in the direction of finding some method of artificially preparing fats so that a greater degree of absorption may be secured. With this purpose in view they carried out experiments on two different lines: 1. They tried to provide their fats in the form of a soap that would be easily prepared and administered, and to investigate its absorption when given by rectum. 2. Search was made for a good emulsion of fat that would remain emulsified after its introduction into the bowel. Their results were such as to convince them that it is impossible by any methods now available to administer successfully sufficient soap to make it of decided nutritive value. They were unable, after repeated attempts, to find any method of making a soap that could be readily prepared for clinical purposes or would be unirritating. Their results with an artificial fat emulsion, a mixture of alkali albumin and cod-liver oil, were somewhat more encouraging. They believe that further study may determine that the clinical value of nutritive enemas may be increased, though it is still a question whether it ever will be possible to maintain nutrition in this way. They believe that the functions at present served in most cases by nutritive enemas are: first and most important, to provide fluids and various inorganic salts for the tissues; 2, to provide, perhaps, from a third to a sixth of the requisite amount of food; 3, to prevent the anxiety of friends and patients that would be produced by giving no food.

3. **Tuberculous Cavities in the Lung.**—Allyn insists on the importance of a thorough examination and following an orderly progression in developing physical signs in attempting to arrive at a diagnosis of tuberculous cavities in the lung. The most trustworthy signs are to be found in deficient expansion and flattening of the chest wall over the cavity; in a percussion note which is often a high-pitched tympany, especially if percussion is made with the mouth open, but which may be only a muffled sound or a dull or flat sound; in pectoriloquy, particularly the whispering variety; in breath sounds which are cavernous, tubulo-cavernous, tubulo-amorphic or amorphic; and in a multiplicity of râles, chiefly moist râles, which, after coughing, may have a resonating quality.

4. **Diet After the Age of One Year.**—Griffith advises that the infant should be weaned at from the age of ten to twelve months. When possible this should be accomplished gradually, only one bottle of food being given at first, and this of a strength less than mother's milk, thus enabling the child to accustom itself to the new food. The number of bottles and the strength of the mixture are increased gradually until at the age of a year the food should consist of milk slightly diluted. The child should be weighed systematically twice a week during the weaning, in order that no undiscovered loss of weight takes place. After the child has been weaned entirely and has become accustomed to the new artificial food, it is well to add to the food a concentrated amylaceous substance such as barley jelly or arrowroot jelly. The proportion of two rounded tablespoonfuls of barley flour or arrowroot to a pint of water, cooked in a double boiler for ten or fifteen minutes, makes the proper strength. This may be added to the food in the proportion first of one and later of several teaspoonfuls to each bottle, the addition to be made while the cereal substance is still hot. The number of feedings during this period has been reduced from three hours to three and a half or four hours, depending on the requirements and habits of the child. The amount of nourishment should be from 8 to 10 ounces at a feeding. After the first year Griffith advises the following diet:

DIET FROM 1 YEAR TO 18 MONTHS.

Breakfast (6 to 7 a. m.).—1. A glass of milk with stale bread broken in it, or one of the numerous good breakfast foods on the market. 2. Oatmeal, arrowroot, wheaten grits, farina, hominy grits, etc., made into a porridge and well cooked, and with the milk mixture in use poured over it. 3. A soft-boiled or poached egg with broken bread in it, and a glass of milk.

Second Meal (10 a. m.).—A glass of milk.

Dinner (1:30 to 2 p. m.).—1. Bread moistened with dish gravy (no fat) beef tea or beef juice; a glass of milk. 2. Rice or grits moistened in the same way; a glass of milk. 3. A soft-boiled egg and stale bread thinly buttered; a glass of milk. Rice, sago or tapioca pudding or junket, in small quantities as dessert with any of these diets.

Fourth Meal (5 p. m.).—A glass of milk or some bread and milk.

Fifth Meal (9 to 10 p. m.).—A glass of milk.

DIET FROM 18 MONTHS TO 2 YEARS.

Breakfast (7 a. m.).—1. A glass of milk with a slice of bread and butter or a soda, graham, oatmeal or similar unsweetened biscuit. 2. A soft-boiled egg with bread and butter and a glass of milk. 3. Porridge, as described in the previous list.

Second Meal (10 a. m.).—1. Bread broken in milk. 2. Bread and butter or a soda or other biscuit with a glass of milk.

Dinner (2 p. m.).—1. Boiled rice or a baked potato, mashed and moistened with dish gravy or beef juice; a glass of milk. 2. Mutton or chicken broth with barley rice in it; some bread and butter, and some sago or rice pudding made with milk. 3. A small portion of minced white meat of chicken or turkey, or rare roast beef, beefsteak, lamb, mutton or fish; bread and butter; a glass of milk.

Fourth meal (5 p. m.).—1. Bread and milk. 2. Bread and butter and a glass of milk.

DIET FROM 2 TO 3 YEARS.

Breakfast (7 to 8 a. m.).—1. A small portion of beefsteak, with oatmeal, hominy grits, wheaten grits, cornmeal or other cereal porridge with plenty of milk. 2. A soft-boiled egg, bread and butter and a glass of milk.

Second Meal (11 a. m.).—1. A glass of milk with bread and butter or with a soda or other biscuit. 2. Bread and milk. 3. Chicken or mutton broth.

Dinner (2 p. m.).—Roasted fowl, mutton or beef cut fine; mashed baked potato with butter or dish gravy on it; bread and butter. As dessert, tapioca, sago or rice pudding, junket or a small quantity of raspberries, peaches, grapes without seeds, orange juice or of stewed apples or prunes.

Supper (6 p. m.).—1. Bread and butter. 2. Milk with soda or similar biscuit or with bread and butter.

DIET AFTER THREE YEARS.

FOODS PERMITTED.

Meats.—Broiled beefsteak, lamb chops and chicken; broiled liver; roasted or boiled beef, mutton, lamb, chicken and turkey; broiled or boiled fish; raw or stewed oysters.

Eggs.—Soft-boiled, poached, scrambled, omelet.

Cereals.—Light and not too fresh wheaten and graham bread, toast, zwieback; plain unsweetened biscuit, as oatmeal, graham, soda, water, etc.; hominy grits, wheaten grits, cornmeal, barley, rice, oatmeal, macaroni, etc.

Soups.—Plain soup and broth of nearly any kind.

Vegetables.—White potatoes, boiled onions, spinach, peas, asparagus except the hard parts, string and other beans, salsify, lettuce, stewed celery, young beets, arrowroot, tapioca, sago, etc.

Fruits.—Nearly all if stewed and sweetened; of raw fruits, peaches are one of the best; pears, well-ripened and fresh raspberries, strawberries, blackberries, grapes without the skin and seeds, oranges.

Desserts.—Light puddings, as rice pudding without raisins, bread puddings, etc., plain custards, wine jelly, ice cream, junket.

FOODS TO BE TAKEN WITH CAUTION.

Kidney, muffins, hot rolls, sweet potatoes, baked beans, squash, turnips, parsnips, carrots, egg-plant, stewed tomatoes, green corn, cherries, plums, apples, huckleberries, gooseberries, currants.

FOODS TO BE AVOIDED.

Fried food of any kind; griddle cakes; pork; sausage, highly-seasoned food; pastry; all heavy, doughy or very sweet puddings; unripe, sour or wilted fruit; bananas, pineapples, cucumbers, raw celery, raw tomatoes, cabbage, cauliflower, nuts, candies, preserved fruits, jams, tea, coffee, alcoholic beverages.

It is important that milk remains the chief article of diet throughout early childhood. Broths are serviceable as food only through the cereal addition with which they are thickened. Although rashness on the part of the mother in experiments on new foods is to be condemned, too great caution resulting in too long a continuance with insufficient food is equally harmful. Children should not be fed too frequently nor should they be given too much starch, as that is a frequent cause of illness. The age and need of the child rather than the teeth should be the guide in determining when the giving of meat may be commenced. No candies, cakes or other such articles should be given. No food should be allowed between meals, although if there clearly be real hunger a small glass of milk may be given at times, but even this is to be discouraged as a custom. During very hot weather the diet should be reduced greatly in variety and in amount. The child of 2 years had better be put temporarily on the diet of a child of one year. Illness may often be avoided by following this plan.

New York Medical Journal.

February 4.

7 *Observations on the Diagnosis of Renal Calculus, with Special Reference to Diagnosis by Means of the X-rays. Alexander B. Johnson, New York.

8 Binasal Hemianopsia; Case of Neuritic Optic Atrophy with Binasal Hemianopic Fields. William T. Shoemaker, Philadelphia.

9 *Insects; the Rôle They Play in the Transmission of Disease. Henry Albert, Iowa City.

10 Gonorrhea in Its Female Pelvic Relations. Ely Van De Warker, Syracuse.

11 *Practical Value of Litten's "Diaphragm Phenomenon" in Diagnosis. William N. Berkeley, New York.

12 Report of a Case of Cerebrospinal Meningitis, Lumbar Puncture, Purulent Cerebrospinal Fluid, Perfect Recovery. Sigmund A. Agatston, New York.

13 Dry Gangrene Following the Application of Carbolic Acid Dressing Covered with Oiled Silk. Vertner Kenerson, Buffalo.

14 Cause of Seasickness. Charles W. Hogg.

7. **Diagnosis of Renal Calculus.**—Johnson discusses the clinical history of renal calculus, especially with reference to diagnosis. He details his experiences in 125 cases with the *x*-ray used as a diagnostic agent and has found that a positive diagnosis of kidney stone by the *x*-rays is reliable and of great practical value. The same may be said of a negative diagnosis, up to a certain limit. If pictures of the proper quality are obtained, calculi of oxalate of lime and phosphates can be excluded. Pure uric acid calculi can not. Failures are due to: 1, The great thickness of the body of the patient; 2, imperfect working of electrical apparatus; 3, improper handling of the photographic plate in the dark room, and 4, imperfect photographic plates. To insure success in the radiography of kidney stones the following conditions must be fulfilled: The electrical current used to excite the tube must be of high voltage and of considerable amperage. The best coils and large static machines answer this requirement perfectly. The *x*-ray tube used must permit the passage of such a current continuously for several minutes without much change in internal resistance, although the resistance or vacuum of the tube is relatively low at the start. A tube of relatively low resistance produces rays showing on the photographic plate slighter differences of density in the structures through which the rays are passed, but, as the result of the passage through such a tube of a powerful current the tube usually becomes heated with a further fall of resistance and the production of rays of inadequate penetrative power. A tube of high resistance tends to preserve its vacuum resistance better, but the *x*-rays given off from a tube, the resistance of which is very high, possess the penetrative power to a high degree; they penetrate all the structures of the body more nearly in an equal manner and thus produce radiographs showing but little contrast betwen tissues of different densities. His best pictures have been taken with the Wehnelt electrolytic interrupter, with rather a heavy platinum electrode having a considerable amount of platinum exposed in the acid, thereby permitting the use of a current of considerable amperage and relatively slow interruptions. The exposures for large, stout people have varied from ten to fifteen minutes, with anticathode about thirty inches from the photographic plate. For thin individuals these exposures have been shortened one-half.

9. **Insects in Transmission of Disease.**—Albert discusses the diseases transmitted by insects; the insects responsible for such transmission; the manner in which such transmission may occur, and the agents that may be used to eliminate the insect factor in the transmission of disease.

11. **Litten's Diaphragm Phenomenon.**—Berkeley suggests the term "phrenic wave" for this phenomenon, which is the visible descending and ascending wave associated with the respiratory movemen's of the diaphragm in the lower zone of the thorax. To students in physiology the phrenic wave is useful as a demonstration of the respiratory movements of the diaphragm. When unbroken and over three inches in extent on both sides it is a good indication of healthy lungs, and should be incorporated as such into life insurance examinations. It is an easy and practical substitute in many cases for the expensive and laborious *x*-ray examination of the movements of the diaphragm, when such an examination is desired. When diminished markedly on both sides, low down in the thorax, and more marked behind than in front, it is an excellent sign of asthma and emphysema. When absent or nearly absent, on one side only, it is a useful confirmatory sign of a variety

of conditions which may be suspected from other signs, particularly pleurisy and early tuberculosis. When absent on both sides no conclusion of any kind is really justifiable, unless the patient has been known to have had good waves previously.

Medical News, New York.

February 4.

15 Presidential Address. Charles L. Dana, New York.
16 *Partially Afebrile Estivo-Autumnal Malarial Infection, Having Its Origin in New York City. J. L. Pomeroy, New York.
17 Summer Infant Mortality. L. C. Ager, Brooklyn.
18 Serum Diagnosis of Typhoid by Means of Ficker's Method. J. H. Von Tiling, Poughkeepsie, N. Y.
19 Inflammatory Stricture of the Rectum. J. M. Frankenburger, Kansas City.
20 *Case of So-called Traumatic Asphyxia. R. Winslow, Baltimore.

16. **Afebrile Estivo-Autumnal Malaria.**—Pomeroy reports the case of a man who contracted estivo-autumnal malaria in New York City, not having been outside of the city in fifteen years. His regular work was unloading vessels from all parts of the world. During the fall of 1900 he began to sufferr from chills and sweats. The attack lasted about three weeks, during which time he was bed-ridden and his skin became yellow. Recovery was slow, and from time to time he suffered from chills followed by sweats. Loss in weight became quite apparent. The affection was pronounced malaria and his physician gave him some pills, after taking which he invariably improved. Recently the chills and sweats recurred with renewed severity. While they were very irregular, they occurred some time between 5 a. m. and 9 p. m. Shortly after entering the hospital he had a violent chill, followed by a profuse sweat, but his temperature was normal, both before and after chill, not going above 99. These chills proved very irregular, appearing often without being followed by a definite sweat, and, again, the reverse would be the case. Examination of the blood showed the presence of extracellular crescentic and ovoid bodies, the latter preponderating during the afternoon and the former during the forenoon. The patient was placed on quinin sulphate in perforated capsules, 15 grains every four hours, and one-half ounce of Warburg's tincture before meals to stimulate his appetite. Saline catharsis was used to relieve constipation and to increase elimination. Under this treatment, recovery was prompt. The points of interest in the case are: 1. An estivo-autumnal infection having its origin in New York City. 2. Chills and sweats without temperature—the latter appearing only when quinin had been administered and then not rising above 100.2.

20. **Traumatic Asphyxia.**—The history of Winslow's case is as follows: An elevator conductor had occasion to get on top of a car and told an assistant to lower it, but by mistake the elevator was raised and the man was caught between the ceiling and the top of the car. He was forcibly bent down so that he sat on his heels, while his head was forced down to the roof of the car. He was kept in this position for some moments, during which time he felt as if his head and chest would burst and he could not breathe. He did not lose consciousness, but suffered considerable pain. After his release he had bloody expectoration and some epistaxis. Examination of the chest revealed fractures of the fourth, fifth and sixth ribs on the left side, with some emphysematous infiltration of the subcutaneous connective tissues. There was some cough. A contusion was seen on the right ear. There was no blood in the urine nor was he unable to empty the bladder. A lacerated wound was found around the rectum, which had evidently been made by the heel of his shoe as he was doubled up by the pressure. Sight and hearing were not impaired. The pupils were equal and responded to light. There was an extensive extravasation of blood under each conjunctiva and a bluish discoloration of the head, face and neck to the level of the cricoid cartilage. It was punctiform in character, like the eruption of scarlet fever, but blue instead of red. It did not disappear nor change materially on pressure. The temperature rose to 100.8, dropping to normal in three days. The pulse rate was 120 and gradually dropped to 80. The color of the skin gradually faded but had not entirely disappeared when he was discharged, on the twelfth day. No special treatment was instituted except an ice bag to the chest and, subsequently, adhesive strips, with enough morphin to relieve the pain. Microscopic examination of a piece of skin removed from the side of the neck showed practically no alterations. The capillaries here and there were more or less distended with blood, but no blood was found anywhere in the tissues outside of the blood vessels.

Medical Record, New York.

February 4.

21 *Sanitary Conditions as Encountered in Cuba and Panama, and What Is Being Done to Render the Canal Zone Healthy. William C. Gorgas, U. S. A.
22 *Intramuscular Hemorrhage from Muscular Action. Andrew H. Smith, New York.
23 Review of Some Recent Papers on the Surgical Treatment of Prostatic Hypertrophy. E. G. Ballenger, Atlanta, Ga.
24 *Diagnosis of Renal and Ureteral Calculi. H. A. Fowler, Washington, D. C.
25 *Growth of Bone in the Tonsil. William W. Carter, New York.
26 *Report of Three Cases of Intestinal Anastomosis by the Connell Suture. H. H. Sinclair, Walkerton, Ont.

21. **Sanitary Conditions in Cuba and Panama.**—Gorgas discusses the progress and results of sanitary measures in Cuba, particularly with reference to the extermination of yellow fever, and outlines the steps that will be taken to render the Isthmian Canal zone as free from malaria and yellow fever as is Havana.

22. **Intramuscular Hemorrhage from Muscular Action.**—Smith emphasizes the distinction to be drawn between those cases in which the escape of blood within the intact sheath of a muscle is the important factor and those in which laceration of muscle and sheath plays the principal part. He says the former variety may give rise to greater immediate suffering and to more lasting impairment of function than the latter. Rupture of individual muscle fibrillæ, the result of a violent contraction, is comparatively common, even in a healthy muscle. Almost any muscle may be involved, but those that act through tendon of achilles suffer most because of the greater strain to which they are subjected. Other causes of rupture are excessive stimulation, irregular contraction and inco-ordination of the muscle fibers. The amount of hemorrhage depends more on the freedom with which the effused blood can escape into the neighboring tissues than on the size of the vessel torn across. The degree of pain felt by the patient depends on the amount of pressure or tension within the blood sac. Smith cites two cases of hemorrhage into the calf muscles due to muscular action in which a limited amount of blood was effused into a confined space, with the result of causing much pain and protracted disability. In two other cases cited the muscle was torn completely across, the calf muscles in one and the sterno-cleidomastoid in the other, but the suffering was comparatively slight and the disability of short duration.

24. **Diagnosis of Renal and Ureteral Calculi.**—Fowler emphasizes the importance of early diagnosis in these cases because by early surgical interference we can save the kidney and also procure relief for the patient. Moreover, we avoid alarming and distressing complications and a final resort to more serious operations. In the early stages, nephrolithotomy offers a perfect cure, is not dangerous, and is attended by a very low mortality.

25. **Growth of Bone in Tonsil.**—Carter narrates a case, female, aged 22, in which one tonsil was found to contain areas of hyalin cartilage undergoing osseous transformation, and other areas in which bone was being formed directly from fibrous tissue; while in still others the transitional stages from fibrous tissue through cartilage to bone were observed. Carter expresses the belief that in these cases the bone originates from metaplastic changes in connective tissue and not from the branchial arch, but since bone does not develop in every tonsil that has been subject to proliferative connective tisue changes, we must assume, when it does occur, some local predisposing tendency to its formation.

26. **Experience with the Connell Suture.**—Sinclair relates

three cases in which he made use of the Connell suture. The first was a case of strangulated inguinal hernia; the second, gangrene, the result of a volvulus; the third, a retrocolic gastrojejunostomy for perforated gastric ulcer. The three cases made uneventful recoveries.

St. Louis Medical Review.

January 28.

27 Malformation of the Bladder. Herman Tuholske, St. Louis.
28 Case of Potassium Iodid Eruption. M. J. Epstein, St. Louis.
29 Hydatid Cysts of the Liver. (Continued.) Neill MacPhatter, New York.

Boston Medical and Surgical Journal.

February 2.

30 Relation of the Epileptic to the Community. William N. Bullard.
31 *State's Relation to the Epileptic. Owen Copp, Boston.
32 *Tuberculosis Problem and Some Suggestions in Dealing with It. Edward O. Otis, Boston.
33 *Treatment of Hemorrhoids by the General Practitioner. T. Chittenden Hill, Boston.
34 Consumption and Its Borderland, Public and Professional Concern. Paul Paquin.

31. **State's Relation to the Epileptic.**—Copp discusses the obligation of the state to epileptics and the protection it requires for its own welfare. In addition to legislative efforts, he advises that the state should provide the following:

1. A center for study, research and teaching in relation to epilepsy, well officered and equipped, to afford scientific treatment to patients both within its care and at home, through advice to indigent parents and friends who may wish to avail themselves of the aid, and, in conjunction therewith, schools for elementary education, manual training and persistent drilling into habits of doing simple, everyday acts of helpfulness to the family or the institution.
2. Colonies, independent or associated with such a center, which the adult epileptic, thus trained, may enter and find a home in place of isolation in society, and industrial opportunities graduated to his capabilities under conditions suited to his peculiarities and to the utilization of his productive energy.
3. Custodial provision for the infirm, intractable and insane epileptic.

The trend of this policy is toward segregation of epileptics, both in the classification for public wards and apart from the general community. Its successful issue would afford the chief check on hereditary transmission of the degenerative taint.

32. **Tuberculosis Problem.**—Otis says that in order to stamp out tuberculosis it is essential, in addition to the measures usually followed, to promote conditions of wholesome living, to teach the people the elements of personal and house hygiene, and to teach what wholesome living is and how to obtain it.

33. **Treatment of Hemorrhoids.**—Hill says that the great majority of cases of hemorrhoids, of whatever form, can be treated radically, satisfactorily and with little discomfort to the patient at the physician's office. The after-treatment of these cases requires careful attention. The bowels, as a rule, should be confined for forty-eight hours. On the second night half a dram of fluid extract of cascara should be given, and sufficient thereafter to secure daily evacuations. The anal region should be kept scrupulously clean, and a pad of cotton-wool wrung out of bichlorid of mercury solution, 1 to 1,000, placed over the anal orifice is more acceptable to most persons than a dry dressing. Good drainage must be secured and the necessary topical applications made to induce rapid healing. Should there be much pain or soreness (which is rarely the case), it can be relieved by anodyne suppositories, morphia, cocain, or combinations of both. An irritable or hypertrophied external sphincter is occasionally the cause of pain after these operations. This complication can be avoided by a complete division of both layers of the muscle, a painless operation, under local anesthesia. On no account should the internal sphincter be damaged, as incontinence might follow.

Lancet-Clinic, Cincinnati.

January 28.

35 Systematic Examination of Sick Children. James W. Rowe, Cincinnati.
36 Appendicitis. Horace J. Whitacre, Cincinnati.

February 4.

37 Pain in the Back—A Clinical Lecture. F. W. Langdon, Cincinnati.
38 *Typhoid Fever and Appendicitis. John C. Oliver, Cincinnati.
39 *Macular Atrophy of the Skin. Edw. H. Shields, Cincinnati.

38. See abstract in THE JOURNAL of January 7, p. 60.

39. Ibid., vol. xliii, p. 1251.

The Laryngoscope, St. Louis.

January.

40 *Throat Complications in Typhoid. F. J. Quinlan, New York
41 Acute Suppurative Otitis Media Complicated by Double Pneumonia, Septic Thrombosis of Jugular Bulb; General Systemic Infection. E. B. Dench, New York.
42 Difficulties in Diagnosis of Intracranial Extension of Suppurative Otitis in the Presence of a Pulmonary Complication. A. B. Duel, New York.
43 Bezold's Mastoiditis; Report of Three Cases. S. Oppenheimer, New York.

40. **Throat Complications in Typhoid.**—Quinlan calls attention to throat complications of typhoid, such as pharyngitis, laryngitis and tonsillitis. The clinical history of these affections is described at great length and the literature on the subject is reviewed carefully. Quinlan asks that more attention be given these complications by the general practitioner, as they are of greater importance than is usually believed. A laryngitis occurring in the course of typhoid always modifies the prognosis. Therefore, any symptom pointing to an involvement of the throat should be investigated thoroughly and proper treatment instituted.

Annals of Ophthalmology, St. Louis.

January.

44 Direct Action of Drugs on the Extrinsic Muscles of the Eyeball. C. A. Oliver and D. M. Hoyt, Philadelphia.
45 Posterior Cortical Cataract of Traumatic Origin. C. Koller, New York.
46 Contribution to the Technic of May's Symblepharon Operation. A. Natanson, Jr., Moscow, Russia.
47 School Influence on the Eye and Spinal Column. J. Liebreich, Paris.
48 John Taylor, Charlatan Oculist. M. Frank, Chicago.
49 Treatment of Infection After Cataract Operation. A. Bourgeois, Rheim, Germany.
50 Corneal Laceration with Cilia in Anterior Chamber; Pupillary Occlusion; Four Operations; Recovery. A. J. Bedell, Albany, N. Y.
51 *Operation for Entropion of the Lower Eyelid. J. M. Ball, St. Louis.
52 Four Cases of Sympathectomy. F. L. Henderson, St. Louis.
53 Common Misconception of Astigmic Retraction. W. N. Souter, Washington.
54 Rheumatism Tenonitis. F. C. Heath, Indianapolis.

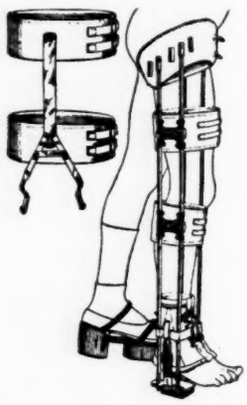
51. **Operation for Entropion.**—Hall describes an operation devised by him which he says is efficient for the relief of trichiasis and of organic entropion of the lower eyelid, and does not require excision of any tissue. The procedure consists of three steps: 1. Incision of the conjunctiva and tarsal plate.—The writer's, or preferably Ewing's, modification of Desmarres' *pince anneau* is applied, the base plate being in contact with the skin of the lid. An incision parallel with the lid margin is made at a distance of two millimeters from the margin, extending from a point one or two millimeters external to the lower punctum lachrymaliæ to a point one or two millimeters from the external canthus. The incision is made with a cataract knife or with a small scalpel, and includes the conjunctiva and entire depth of the tarsus. The cut is made obliquely from behind downward and forward. 2. Exposure of the lower margin of the tarsal plate.—The lid clamp is released and reversed, that is, the base plate is applied to the conjunctival surface. An incision is made along the whole extent of the lower margin of the tarsal plate. The lower border of the tarsus is then exposed by dissection and retraction of the tissues. 3. The placing of the sutures.—Three or four silk (English black, No. 1) sutures are then passed. The needle is entered from the conjunctival surface of the first wound and is passed obliquely from behind upward and forward, the upper part of the lid being held firmly with ordinary fixation forceps. The needle is then made to bite in the lower margin of the tarsus, and, lastly, it is passed through the lower lip of the cutaneous wound. The sutures are then tied. The effect of tying them is to produce a *renversement* of the upper segment of the lid, the cilia being directed forward, or forward and downward. The gaping wound in the tarsus heals by granulation. The sutures are removed at the end of four days.

Therapeutic Gazette, Detroit.

January 15.

55 Removal of Foreign Bodies and Substances from the Eyeball and Inner Surface of the Lids. M. D. Stevenson, Akron, O.
56 Adenoid Vegetations of the Pharynx. C. W. M. Brown, Elmira, N. Y.
57 *New Ambulatory Splint for Fractures of the Thigh or Leg. A. R. Taylor, Blano, Ill.
58 New Maternity Gown. H. Lowenburg, Philadelphia.

57. **New Ambulatory Splint.**—Taylor describes his ambulatory splint, which he has used successfully in the treatment of fractures of the thigh and leg. It consists of four rods, two placed on each lateral aspect of the leg, which are adjustable as to position and length and can be fitted to either limb. At the hip and ankle are placed pneumatic pads which can be either tightened or loosened at will with



an ordinary bicycle pump. The ankle pad is secured over a Levis splint and tightly laced, then the strap and the heel extension are buckled on either side, to make any traction unnecessary, even for hip fractures. A fourth pad is placed just below the knee. It secures the Levis splint and helps to retain the limb from any side play. It is not necessary to do much bandaging, as the pads hold the parts perfectly in apposition.

Chicago Medical Recorder.

January.

59 *Congenital Deformities of the Knee. J. Ridlon, Chicago.
60 *Prevention of Appendicitis. W. H. Harsha, Chicago.
61 Thoracoplasty. K. Sandberg, Chicago.
62 Diagnosis and Methods of Treatment in Chronic Prostatitis. F. A. Leusman, Chicago.
63 Two Cases of Hereditary Contracture of the Feet with Operation. J. L. Porter, Chicago.
64 Cardiac and Renal Aspects of Pneumonia. A. R. Elliott, Chicago.

59. **Congenital Deformities of Knee.**—Ridlon says that so far as he knows true congenital dislocation does not occur at this joint. The congenital defects and deformities of the knee are: Slipping patella, displaced patella, elongated patellar tendon, in-knee, out-knee, flexed knee, hyperextended knee and outward rotation of the tibia on the femur. The cause of these conditions is not known, but he believes that they are some of the many instances of defective development of the embryo. The symptoms are the deformities present and the disabilities that these deformities entail. In the treatment of slipping patella Ridlon has tried trusses and braces, but without success. Hammering of the outer condyle, to stimulate the subperiosteal development of bone, he has tried in two instances, once successfully. In one case of congenital in-knee the deformity was corrected by forcible hand-straightening and prolonged retention in a plaster splint. The treatment of flexion deformity consists in forcible manual straightening, with prolonged retention in plaster splints followed by massage and passive flexion exercises. Congenital out-knee should be treated on the same principles as in-knee. Ridlon has seen seven congenitally hyperextended knees in four patients. In all the patella was absent at birth, and only appeared when, after treatment by passive motion, it was possible to fully straighten or somewhat flex the legs on the thighs. Treatment consisted of daily massage and strong passive flexion of the legs on the thighs. The history of a case of outward rotation of the tibiæ on the femora was given in detail. The tibiæ were rotated outward on the femora about 45 degrees. The patellæ lay directly to the outer side of the outer condyles and were of normal size. The treatment consisted in an attempt to over-correct the flexion deformity, and to rotate the tibiæ to their normal relations. The operation was so far successful that the patient is now able to walk with a cane, showing that it is possible to gain a functionally good limb in these cases without a radical cutting operation.

60. **Prevention of Appendicitis.**—Harsha reviews the probable causes of appendicitis, such as errors of diet, intestinal disturbances and traumatism, and outlines the treatment in each case.

Ophthalmic Record, Chicago.

January.

65 *Injuries to the Eye from Particles of a Copying Pencil Getting Into the Conjunctival Sac. J. M. Ray, Louisville.
66 Relative Virulencies of Differently Tinted Colonies of Chromogenic Bacteria. C. A. Oliver, Philadelphia.
67 Eye Instruments. Three New Models. C. H. Beard, Chicago.
68 Operative Treatment of Myopia. J. A. Donovan, Butte, Mont.
69 Parinaud's Conjunctivitis; Report of Three Cases. E. C. Ellett, Memphis, Tenn.
70 Visual and Oculomotor Neurons. G. C. Savage, Nashville, Tenn.
71 Exophthalmos and Sphenoidal Abscess. H. V. Würdemann, Milwaukee.

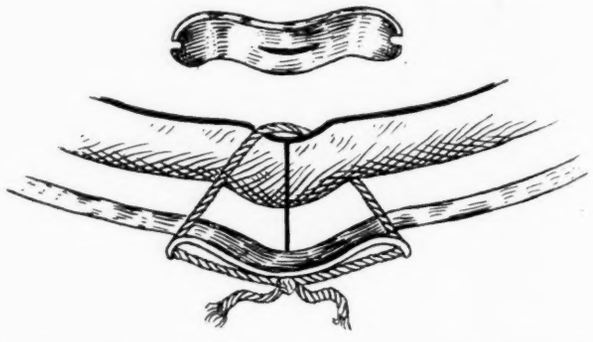
65. **Anilin Conjunctivitis.**—Ray reports two cases in which rather severe reaction followed an apparently simple accident. While sharpening an indelible pencil a particle of the point lodged on the conjunctiva. Considerable smarting and lachrymation followed, but in a short while the pain subsided and the only discomfort left was the excessive lachrymation, which was stained a deep blue. Later the lids became much swollen and edematous, and there was considerable photophobia. The corneal epithelium was colored blue and so steamy that only a blurred iris could be seen. In one case a large ulcer formed, involving the cornea and conjunctiva and extending into the upper cul-de-sac. The conjunctiva, in addition to being stained and thickened, also presented a peculiar dry appearance and was partly anesthetized.

International Journal of Surgery, New York.

February.

72 Some Common Deformities and Their Prevention. D. T. Bowden, Paterson, N. J.
73 *The Chambers Suture in Abdominal Surgery. J. E. Chambers, St. Louis.
74 Temperature as a Guide to the Existence of Suppuration. L. Allen, Burlington, Vt.

73. **Chambers' Suture.**—The suture devised by Chambers carries the thread across the wound over a silver bridge. There is no chance for the suture to become infected by skin secretions, and there are no cross scars, no cutting threads, no stitch abscess, no infection. It is easy to adjust and remove. In the accompanying illustration it will be noted



that the method obviates the making of a trough into which the perspiration and skin excrement might flow and thus furnish a suitable culture medium for bacteria. The Chambers suture removes the danger of autoinfection. The apex of the triangle lifts the abdominal muscles off the wounded peri-

tonieum and exerts a greater force on the muscular section of the wall than elsewhere, thereby removing danger of hernias. The suture unites the wound margins evenly and firmly without inversion anywhere. It lifts the skin surface into the arch of the bridge, which causes the perspiration and excrement to flow away from the wound. The silver bridge prevents the thread from cutting into the skin. Chambers suggests that this suture, in midget size, should be valuable in surgery of the face to prevent scars, but he has not yet had an opportunity to make a practical test.

Annals of Gynecology and Pediatry, Boston.

January.

75 Postoperative Anuria. Pathogenesis of Anuria in a Case of Vaginal Hysterectomy for Cancer, with Experimental Research on the Cadaver. Giuseppe Betagh, Sicily.
76 Management of Acute General Peritonitis. J. Garland Sherrill, Louisville.

Colorado Medicine, Denver.

January.

77 Case of Infantile Scorbutus with Remarks on the General Features of This Affection. H. B. Whitney, Denver.
78 Transplantation of the Cord in the Radical Cure of Inguinal Hernia. F. Gregory Connell, Salida.
79 Extensive Bone Regeneration After Gunshot Injury Involving the Leg. George W. Miel, Denver.
80 Improved X-ray Method for the Study of Bone Injuries and for Foreign Bodies. G. H. Stover, Denver.
81 Final Report of Cases of Congenital Dislocation of the Hip and Exhibition of Patients. George B. Packard, Denver.
82 Education vs. Legislation. R. W. Corwin, Pueblo.

Western Medical Review, Lincoln.

January.

83 The Paisies of Children. J. M. Aikin, Omaha.
84 Medical Bibliography. H. Winnett Orr, Lincoln.
85 Some Further Notes on Intestinal Paralysis and Peritonitis. George Haslam, Fremont, Neb.
86 The Management of Infancy. C. D. Barnes, Tecumseh, Neb.

Journal of Cutaneous Diseases, New York.

January.

87 Melanoma. James C. Johnston.
88 Observations Concerning Some Palmar Eruptions. Henry W. Stelwagon, Philadelphia.
89 Porokeratosis (Mibelli). M. L. Heidingsfeld, Cincinnati.

Medical Fortnightly, St. Louis.

January 25.

90 Lung Complications in Influenza. J. T. Pratt, Philadelphia.

Medical Herald, St. Joseph, Mo.

January.

91 Prostatic Surgery. T. E. Potter, St. Joseph.
92 When Not to Operate in Appendicitis. J. E. Summers, Jr., Omaha.
93 Tinea Trichophyton. R. C. Moore, Omaha.
94 Horseshoe Kidney. W. L. Curtis, South Omaha.

Cleveland Medical Journal.

January.

95 Special Field of Neurological Surgery. Harvey Cushing, Baltimore.
96 Prognosis and Treatment of Aortic Regurgitation, with Report of Four Cases. M. J. Lichty, Cleveland.

Northwestern Lancet, Minneapolis.

January 15.

97 Hereditary and Maternal Influences as Factors in Health and Disease. Christian Johnson, Willmar.
98 Medical Ethics and Medical Organization. E. Viko, Salt Lake City.

American Practitioner and News, Louisville, Ky.

January 1.

99 A Few Thoughts on Medical Life Insurance. W. Ed. Grant, Louisville.
100 Tonsillar Hypertrophies. John K. Morris, Louisville.
101 Acute Anterior Poliomyelitis. Philip F. Barbour.

Southern Medicine and Surgery, Chattanooga, Tenn.

January.

102 Chronic Ulcer of the Stomach and Duodenum, from a Surgical Standpoint, with Remarks on Gastric Cancer. William J. Mayo, Rochester, Minn.
103 Stomach Tube—Its Origin, Use and Abuse. L. Amster, Atlanta, Ga.
104 Some of the Difficulties in Obstetrical Practice. W. G. Bogart, Chattanooga, Tenn.

Dominion Medical Journal, Toronto.

January.

105 Report of a Case of Fracture of the Base of the Skull with Middle Meningeal Hemorrhage Between Dura Mater and Skull. Edgar Brandon.
106 Wood Alcohol. J. S. Sprague, Stirling, Ont.

Fort Wayne Medical Journal-Magazine.

January.

107 Hernia. E. H. Griswold, Peru, Ind.
108 The Organization of an Anti-tuberculosis Crusade in Fort Wayne. G. W. McCaskey, Fort Wayne, Ind.

Atlanta Journal-Record of Medicine.

January.

109 Tuberculosis as a Sociologic Factor. R. R. Kime, Atlanta.
110 Cerebrasthenia the Bane of the American Brain-worker. E. Van Goigtsnoven, Atlanta.
111 Address, Atlanta Medical Society. A. W. Stirling.

Medical Sentinel, Portland, Ore.

January.

112 When Should the Stomach be Treated Surgically? Andrew C. Smith, Portland, Ore.
113 The Syphilitic. Being Part of a Symposium on Nervous Diseases. William House, Crystal Springs.
114 Discussion of Some of the Newer Aids in Surgical Diagnosis. Park W. Willis, Seattle.
115 Osteomyelitis Necessitating Hip-joint Amputation. E. B. McDaniel, Baker City, Ore.

Columbus Medical Journal.

January.

116 The Science of Life. Isaac Kay, Springfield, Ohio.
117 Management of Acute Pelvic Inflammation. R. E. Skeel, Cleveland.
118 Medical Jurisprudence. Noah J. Dever, Portsmouth.
119 Dr. Benjamin Rush and the Unveiling of His Monument. James U. Barnhill.

Providence Medical Journal.

January.

120 Two Cases of Chronic Anemia with Splenic Enlargement. Mary S. Packard, Providence.
121 Mucous Colitis. Halsey DeWolf, Providence.
122 The Correspondence Method of Treating Disease. F. T. Rogers, Providence.
123 The Business End of Medicine. W. A. Risk, Providence.

Post-Graduate, New York.

January.

124 Treatment of Typhoid Fever by the Brand Bath. Leonard Weber, New York City.
125 Angioma Simplex of the Ovary. Rupture Causing Death. S. D. Jacobson, New York City.
126 Galvanization. Properties of the Galvanic Current. Wm. J. Morton, New York City.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London.

January 21.

1 *Treatment of Inveterate Pruritus Ani. Charles Ball.
2 Treatment of Appendicitis. Rushton Parker.
3 *Operation for Appendicectomy. A. W. Mayo Robson.
4 Unusual Case of Suppurative Appendicitis. George A. Clarkson.
5 Perforated Duodenal Ulcer; with a Report of Three Cases. H. S. Clogg.
6 Operation of Gastro-duodenostomy; Especially in Reference to Finney's Operation of Gastro-pyloduodenostomy. Donald Armour.
7 Kidney Which Contained More Than 40,000 Iridectomy Calculi. J. Bland Sutton.
8 Cancer of Gall Bladder Due to Irritation of Gallstones; Cholecystectomy and Partial Hepatectomy. J. Hutchinson.
9 Two Cases of Suppuration of Goiter. Thomas Evans, New Quay.
10 *Reasons for Abandoning the Uric Acid Theory of Gout. Chalmers Watson.
11 Note on Senile Symmetrical Atrophy of the Skull. F. Parkes Weber.
12 *Significance of Scars of the Genital Region in the Retrospective Diagnosis of Syphilis. Arthur Cooper.

1. **Treatment of Inveterate Pruritus Ani.**—Ball's method, a surgical one, is as follows: The skin having been cleansed, a curved incision is made on each side of the affected area, enclosing the entire ellipse, with the exception of a narrow neck in front and behind; these incisions are carried down the sphincter muscles and the flaps raised by careful dissection with scissors from the surface of the muscle, round its anal origin, and up the anal canal to above the muco-cutaneous junction, the dissection extending round the entire circumference, all connections with the subjacent tissue being divided. The pedicles in front and behind are now undercut to a point well beyond the area of irritation, and the outer concave edges of the incision are also undercut to a distance of at least a quarter of an inch free of the involved skin all round. Care must be taken to stop all bleeding before the flap is replaced, as the formation of a hematoma in the wound might interfere with the vitality of the flaps. The flaps are finally replaced and retained by sutures, a few intervals being left between them for drainage. The immediate result of this operation is to render the entire ellipse included between the incision, the pedicles and outer edges as far as they have been undercut, superficially anesthetic, and the itching is at once relieved.

Three cases in which this method was used demonstrate that the operation gives immediate relief and that superficial sensation may be restored without recurrence of the pruritus. Should recurrence of pruritus supervene after the operation, Ball thinks removal of the posterior roots of the third and fourth sacral nerves, with their ganglia, would have to be considered.

3. **Operation for Appendicectomy.**—Robson describes his method as follows: An oblique incision of from three to four inches is made about two inches internally to the right anterior superior spine of the ileum down to the aponeurosis of the external oblique, which is then split in the direction of its fibers to an extent equal to the external incision. The fascia over the internal oblique, the internal oblique and the transversalis muscles are split in the direction of their fibers, so as to make a lozenge-shaped opening, with the peritoneum as its floor, when the margins are forcibly stretched. Bleeding points, if any, are tied. The peritoneum is caught up by two pairs of pressure forceps and brought to the surface, when it is incised between the forceps and the opening is increased to the extent of an inch or an inch and a half. Through the opening the cecum is drawn out, the appendix is located, and any adhesions are separated by the finger; or, if necessary, ligated. As soon as the appendix is brought to the surface any protruded cecum or colon is returned into the abdomen, leaving the appendix and the apex of the cecum protruding through the lozenge-shaped aperture in the abdominal wall. The mesentery of the appendix is seized with pressure forceps and is divided between the forceps and the appendix, a ligature being applied to the stump. If the mesentery is very long, it may have to be ligated in two or even in three portions. As a rule, one ligature is sufficient. The root of the appendix close to the cecum is then seized between the blades of a pair of ordinary Spencer-Wells pressure forceps and crushed, the forceps being taken off and reapplied at right angles in order to make the crushing more complete, so as to leave only the peritoneal coat in the crushed portion. To this crushed base of the appendix, close to the cecum, an ordinary thin catgut ligature is applied and cut short. A purse-string suture is then inserted around the root of the appendix, but not tightened until the appendix has been removed, which is effected by seizing it with the pressure forceps just above the crushed portion and cutting it through between the ligature and the forceps. The ligated stump of the appendix, consisting merely of a little nipple of tissue, is depressed by means of a probe or a pair of Lister's sinus forceps, and the purse-string suture tightened. This entirely buries the root of the appendix. For additional security another purse-string suture may be applied, this taking up the root of the mesentery so as to make it form an additional cover to the tip of the cecum. The ligature of the crushed stump of the appendix is not absolutely necessary, as the crushing quite seals the lumen of the appendix. The cecum is then returned, the peritoneum closed by circular suture, the inner two muscles fall together, two or three interrupted catgut sutures unite the separated margins of the internal oblique and then several sutures are in like manner applied to the edges of the aponeurosis of the internal oblique muscle to secure active apposition, after which the skin is united by several interrupted sutures. A dry dressing is applied and left in place for ten days, at which time the patient may be moved to a sofa. The damage to the abdominal wall is so slight that no belt is necessary or even desirable. In acute cases, where the root of the appendix can not always be safely brought to the surface, crushing the root of the appendix and applying a catgut suture to the stump has been sufficient to insure freedom from a fecal fistula. The operation can usually be completed in from ten to fifteen minutes. Where the diagnosis is doubtful a vertical incision through the outer part of the rectus sheath is employed and the muscles displaced inward, when the posterior sheath of the rectus and the peritoneum are divided together in a vertical direction. In this way a free opening can be made, which is large enough to admit the fingers or even the hand without dividing any muscle. When the operation is finished the posterior and anterior parts of the rectus sheath are united separately and a strong abdominal wall is left.

10. **Uric Acid Theory of Gout.**—Watson concludes that the evidence of the laboratory is in harmony with the teaching of clinical experience, and shows that uric acid is not an important etiologic factor in the production of gout. He believes that there is an infective element in the disease, and that the uric acid is the feature which gives the inflammation its specific character. According to this view, the chief source of infection is the alimentary tract, and an injudicious dietary—meat or drink—acts mainly in virtue of its influence on the bacteria present in the digestive tract. This view, he says, by no means minimizes the importance of the hereditary factor in the disease.

12. **Significance of Genital Scars.**—Cooper says that the diagnostic value of genital scars is not always easy to determine, and although no hard-and-fast rules can be laid down, still the retrospective diagnosis of syphilis is a matter of such importance that an attempt ought always to be made to get information from every available source. Excluding non-venereal cases, the following rough summary may be found useful:

1. Genital scars are more common and more marked in hospital than in private practice.
2. In many cases of nervous or other late form of internal syphilis the genital region is free from scars.
3. A single scar on the skin of the penis suggests syphilis.
4. A single scar on the mucous membrane also suggests syphilis as a rule—occasionally the local chancre.
5. Multiple scars on the mucous surface of the penis only suggest the local chancre.
6. Multiple scars on both mucous membrane and skin also suggest the local chancre.
7. Inguinal scars, together with scars on the penis, suggest the local chancre.
8. An inguinal scar without any penile scar (if venereal at all) suggests gonorrhea.
9. Extensive scarring of penis or groin, or both, suggests phagedena.
10. Genital scars, with scars on other parts of the body, suggest an ulcerating syphilide.

The Lancet, London.

January 21.

13 Convulsions During Infancy and Childhood. Henry Ashby.
14 *Principles of Treatment of Pneumonia. William Ewart.
15 *Some Clinical Uses of Iodic Acid and the Iodates. William Mackie.
16 *Experiences with Iodoform Bone Plugging. Von Mosetig Moorhof and B. Seymour Jones.
17 Case of Acute Leukemia, with Remarks on Its Clinical Features and Diagnosis. W. Mitchell Stevens.
18 Case of Contracture and Ankylosis at the Knee Treated by Steel-bar Traction and Hessing's Splint Case Appliance. T. H. Openshaw.
19 Human Piroplasmosis. (Concluded.) C. Donovan.
20 Suppurative Pericarditis. R. W. Murray, Liverpool.
21 Congenital Multilocular Cyst of the Omentum. W. McGregor Young.
22 Fracture of the Anterior Fossa of the Skull Dividing the Optic Nerve. Frank J. Hathaway.

14. **Treatment of Pneumonia.**—Ewart believes in an early and active treatment of pneumonia based on the pathology of the disease and having in view the warding off of disastrous consequences. He scores roundly the so-called expectant treatment. The object should be to arrest the morbid process by other abortive measures than the missing antitoxin; to restrict the invading host, though we can not stop it; to destroy or to neutralize the poison by the vital energies, and to hasten its elimination. For the shock of the invasion, immediate recumbency, warmth, and a small dose of ether or brandy, with hot water, are indispensable. A soothing draught is desirable, such as ammonium bromid with aromatic spirits of ammonia. A dose of calomel is given at once, to be followed half an hour or an hour later with a senna draught. Arrangements must be made for the immediate supply of oxygen, which is to be administered continuously as an aid to the heart. It has the advantage over alcohol in being harmless and in not complicating the alimentary situation. He makes leeching a routine of treatment quite apart from the question of pain. The stronger measure of venesection may be required in some cases, but viewed all round it is not, perhaps, so desirable as leeching. He doubts that it should be resorted to after consolidation has occurred except as a desperate remedy when heart failure is threatened. The abstraction of blood, preferably by leeching, is of great value in proportion to the early date of its employment before the deposition of fibrin. Sweating may

be promoted by the hot-air bath, confined to the lower extremities, or by Rochester's hot mustard footbath. The chief aims of medication are diaphoresis, diuresis, antifibrinosis and absorption. Ewart trusts to the free use of ammonium citrate, to which sweet spirits of niter may be added. Sweating is encouraged by warm beverages. Divided doses of calomel are also given. Fluidity of the blood is brought about by the administration of citric acid, which precipitates the calcium which is essential to clotting, or large doses of iodid of potassium. The administration of the iodid of potassium is continued throughout to the end of the attack. Ewart has prescribed it to the extent of 60 gr. per day with good result. The prescription which he uses for the first day, for adults, is as follows:

R.	Potassii iodidi	gr. v	03
	Liq. ammon. citratis	ʒii	8
	Spts. etheris nitrosi	ʒss	2
	Spts. ammon. arom.	m. xx	1 25
	Aquæ chloroformi q. s.	ʒss	15

One tablespoonful of this mixture, diluted, is given every hour for six doses, and subsequently every three hours; 1/6 of a grain of calomel is taken every four hours. He thinks alcohol in moderation is indispensable from the first as a stimulant and as a food substitute. The diet should be made as watery as possible. Whey is preferable to milk, as it gives no heavy coagula to keep up fermentation. During the second day the same medicine may be continued. Three grains of quinin, in pill or powder, will be a useful addition to each dose. Four ounces of alcohol, or perhaps six, will be required. The whites of two or three eggs can be added to the whey and the yolks beaten up with gin or brandy. A quarter of a pound of sugar should also be given in the whey. A sleeping draught may be required if the patient is restless. On the following days support is the main indication. Raw meat juice, strong gravy, predigested foods and eggs beaten up should be substituted for the whey, and good milk given in tea or thickened with cocoa. Oxygen must be continued and strychnin frequently injected in anxious cases. In safe cases the latter may be included in a fresh mixture with carminatives, and iodid of potassium and quinin should also be administered. In the worst cases a second leeching or even venesection may be indicated. As a preliminary to the latter, two single doses of digitalis might be given at an interval of two hours, and the venesection immediately preceded by a 10-minim dose of a 1 in 1,000 solution of adrenalin under the skin. The further treatment must be dictated by the progress of the case. For the gin or brandy, whisky, rum, champagne, port wine or burgundy may be substituted as long as there is need for a stimulant. Ewart says that the virtues of red wines, particularly when administered hot, and with plenty of sugar, are too much neglected in pneumonia. He regards hot lemonade as of value in the early stages, particularly when the outer glandular layer of the lemon is also made to yield its precious contents.

15. **Iodic Acid and the Iodates.**—Mackie makes a further report of his experiences with these substances. Calcium iodate is useful as a dressing powder to all cicatrizing surfaces; in a warm saturated solution as a vaginal douche; in tuberculous bladder; as a mouth wash and gargle; as an irrigating solution in empyema of the chest, and as a dentrifice in pyorrhea alveolaris. It has been found to be all but a specific applied as an ointment, 10 gr. to the ounce, for the eczemas of infants. It is also useful as an emulsion (3 drams of calcium iodate to the ounce of glycerin) for the treatment of tuberculous joints. In one case of typhoid the results obtained from its use were such as to encourage further trial. It was ordered in half-ounce doses of the saturated solution diluted with water, to be given twice daily, and was increased to one and a half ounces, three times a day, diluted as before. Mackie now orders iodic acid in place of the iodate in typhoid. Iodic acid is a much better antiseptic than calcium iodate. It is also a powerful deodorant. It has the additional advantage of not staining the hands or the tissues, as is the case when potassium permanganate is used. He has used it in irrigating, in the case of a burn; in ozena; in an infected amputation stump; in empyema of the chest; as an application to clean and deodorize two very offensive leg ulcers; in an ataxic female; as a mouth wash in a case of recurrent and inoperable epithelioma of the mouth and cheek; as a vaginal douche in a case of inoperable cancer of the uterus and vagina; as a throat application in diphtheria and in scarlet fever; internally for gastrointestinal sepsis or fermentation; in typhoid fever; and as a surgical disinfectant and antiseptic. The results in all these cases were such as to warrant the further use of iodic acid. The iodate of zinc is useful where a stronger solution of calcium iodate than the natural insolubility of that salt admits of being prepared, appeared to be indicated, and it has been used in various strengths, up to full saturation, in the following cases: For injecting chronic sinuses left after curetting tuberculous glands, phalanges and metacarpal bones; for washing out deep abscess cavity of the palm, and for irrigation in offensive otorrhea. Subiodid of bismuth has been used with unexpected but perhaps not always permanent results in lupus vulgaris, lupus erythematosus and curetted scrofulous glands. Mercuric iodate proved particularly useful, in the form of an ointment, in sycosis, and in 8 consecutive cases of tinea barbæ.

16. **Iodoform Bone Plugging.**—The material which is used for bone plugging by Moorhoff and Jones consists of a mixture of 60 parts of the finest pulverized iodoform and 40 parts each of spermaceti and oil of sesame—a compound which at the ordinary room temperature forms a stiff yellow mass. At 50 C. the substance becomes fluid, and on allowing it to stand and cool, the oily constituents separate above while the heavier iodoform sinks to the bottom. In order to obtain a homogeneous emulsion, the substance, after being melted by warming, must be well shaken up and then it is ready for use. The shape of the cavity in the bone to be filled is of no consequence. To achieve success a hermetical and perfect filling of the cavity is essential, and this desideratum can only be attained by pouring in a fluid substance which solidifies *in situ*. The solid mass must be in contact with and adherent to every portion of the walls, penetrating every fissure and interstice filling the cavity completely. Hence, the cavity must be dry. Blood or fluid used for syringing would prevent the intimate apposition of the mass with the walls. For drying the cavities, hot air is employed. Furthermore, the walls of the cavity should contain no diseased tissue and should be perfectly aseptic. The plugging material is poured in and sets in a few minutes. The superficial soft parts can then be united after a previous complete arrest of all bleeding points by ligation. No especial drainage is required, for well plugged and filled cavities neither bleed nor discharge. Existing fistulous tracts covering soft parts suffice for the escape of lymph, which the soft parts secrete. If no sinuses are present, it is sufficient if the sutures are not inserted close together. The protective dressing should not be regarded as a pressure pad; circulatory disturbances ought to be avoided. The iodoform filling substance has only a provisional sojourn in the wound cavity. It may be either pressed up and expelled by the new connective tissue formation, or it may be absorbed. In the latter event, iodin can be demonstrated in the urine during the course of the healing of the wound. Defects in the bone disappear and the normal shape and size of the bone are restored in a given time. The principal class for plugging comprises the common osteomyelitic affections and tuberculous disease of the articulations and bones; although it may also be used in the case of cavities the walls of which are not exclusively constituted of bony substance, such as a cavity resulting from extirpation of the calcaneum, after resection of the wrist, etc.

Therapie der Gegenwart.

October.

23 Syphilis of the Circulatory Apparatus. R. Renvers.
24 Refracto-metric Determination of Egg Albumin for the Control of Therapeutic Measures. B. Chages.
25 Diagnosis and Treatment of Conjugal Gonorrhea. R. Asch.
26 Symptoms and Treatment of Chronic Otitis Media. B. Heine.

November.

27 Physical Therapy in Heart Disease. C. Baeumler.
28 *Experiences with the Gastric Juice of Dogs. F Rollin.

31 Abdominal Hysterectomy for Carcinoma with Exhibition of a Case Operated on July 28, 1878. W. A. Freund.

December.

32 *Dietetic Treatment of Chronic Diffuse Intestinal Catarrh. T. H. Rosenheim.
33 *Therapy of Stomach Affections. H. Leo.
34 Morphin in Heart Disease. H. Rosin.
35 Sodium Chlorid and Nephritis. H. Strauss.
36 A New Pharmacodynamic Method for Determining the Value of Diuretics. P. F. Richter.
37 Significance of Pain in the Back. M. Mosse.
38 *Alcoholic Cirrhosis of Liver in Eight-year-old Child; Talma Operation. R. Milchner.

28. **Natural Gastric Juice as a Therapeutic Agent.**—Rollin has made use of the gastric juice obtained from dogs in the treatment of stomach affections during the past three years. He obtained the gastric juice directly from Pawlow and repeated tests confirmed its efficiency as a digestant. With the exception of one patient, a woman, who complained that the gastric juice of a dog was too sour and who preferred the gastric juice of the pig, none of the patients objected to the taste of the fluid, even after partaking of it for several years. The 12 cases treated consisted of nervous dyspepsias, subacid and anacid gastric catarrhs. The average dose was 200 c.c. a day taken with the noon and evening meals. On several occasions, two of his patients had to substitute dilute hydrochloric acid for the gastric juice, the supply having given out, and they both stated emphatically that the therapeutic effect of the acid was not as great as that of the gastric juice. Rollin obtained equally good results from the gastric juice in all the cases treated and unhesitatingly subscribes to Pawlow's statement that the natural gastric juice of the dog is the digitalis of the stomach. The history of 10 cases is given in detail. Results were good in all.

32. **Diet in Chronic Diffuse Intestinal Catarrh.**—Rosenheim states that it is impossible to lay down a diet for all cases which is non-irritating and easily assimilable. So far as milk is concerned, although it oftentimes proves exceedingly useful in these cases when given in small quantities, yet, for the majority of patients, it had best not be given. Experience has shown him that if the small bowel is put at rest for a short time by giving some mild diet, other than milk, it is possible to give milk later, and with good result. In many cases, even very mild ones, it is advisable to abstain from milk for months. Rosenheim goes so far as to forbid using milk in the preparation of foods and drinks until the bowel has become perfectly quiet. During the first few weeks of the dieting of all his patients, milk never enters into the bill of fare. Disease of the large bowel, even though it may be advanced, does not contraindicate the use of milk; on the contrary, milk, specially when it is the only food taken, is exceedingly useful. In achylia gastrica and in hyperchlorhydria, milk, as a diet, occupies first place, but it should be omitted when there is an associated catarrh of the small bowel. In the majority of these cases, it is well to begin by prescribing a diet containing 120 or more grams of egg albumin, 200 to 250 grams carbohydrate; 40 to 50 grams fat and consisting of meat, fish, eggs, some sugar, wheat bread or zweibach, rice, farina, sago, macaroni, bouillon, broths, butter, tea, and red wine. Meat ought to form a considerable part of the diet in the majority of these cases. Although the small bowel, even when diseased, is well able to digest albumins, yet care must be taken not to give this in too large amounts, so as not to overtax the digestive capacity of the bowel. Changes in the diet must be made carefully and slowly, watching for the slightest manifestation of disturbances due to the change in diet. In those cases in which a neurosis is an etiologic factor, proper hygienic treatment must be given in addition to the dietetic.

33. **Therapy of Stomach Affections.**—Leo cites a case of gastroxynsis in which all the usual therapeutic measures failed to give any relief. Finally, he resorted to the use of cold douches for two or three minutes, the patient going to bed immediately afterward. This controlled the pain and vomiting for about two hours, and inasmuch as the man took four or five of these cold douches every day he experienced considerable relief. The second case cited is one of very severe gastralgia accompanying a chronic gastritis with subacidity. Lavage with solution of silver nitrate and other medicinal agents, including hydrochloric acid by mouth, proved futile. A mixture of pepsin and hydrochloric acid (10 parts of each in 50 of distilled water) yielded immediate relief and the patient is improving steadily. Leo calls attention to the anesthetic effect of this mixture, a most unusual one, due probably to its peptonizing action.

38. **Talma Operation in Eight-Year-Old Child.**—Milchner cites the case of a girl, 8 years old, suffering from an atrophic alcoholic cirrhosis of the liver, slight jaundice, extreme grave anemia and ascites. Medicinal treatment proving futile, he decided to do a Talma operation. The omentum was very thin and anemic, and showed no adhesions. The phlebectasia so common in liver cirrhosis was absent. An omentopexy did not relieve the ascites. Nevertheless the veins of the chest and abdomen soon became considerably dilated, and a typical caput medusæ formed. Milchner calls special attention to the absence of venous dilatation in the omentum as a probable cause of failure in producing the desired results by performing a Talma operation. On the other hand, his case proves that the success of the Talma operation is not dependent entirely on dilatation of the omental veins, and that the ascites accompanying cirrhosis of the liver is not always the result of congestion in the portal system.

Beiträge z. klin. Chirurgie, von Bruns', Tübingen.

Last indexed page 252.

39 (XLIII, No. 2.) *Ueber embolische Lungen-Affektionen nach Bauch-Operationen (after laparotomies). Gebele.
40 *Ueber complizierte Frakturen der Extremitäten. O. Klauber.
41 Zur Kasuistik der Knochenbrüche (benefits of hospital treatment of fractures). R. Klaus.
42 Kropf-Operationen am städtischen Hospital in Schw. Gmund (108 goiter operations). H. Closs.
43 *Ueber ein differential-diagnostisches Symptom zwischen Hernia cruralis und Varix der Vena saphena magna. J. Hertle.
44 Slowly Absorbed Suture Material.—Nahtmaterial mit verzögerter Resorption. H. Miyake. See THE JOURNAL, XLIII, page 1507.
45 (No. 3.) Die Behandlung des Carcinoms des Pharynx und der Tonsillen. K. Lindenborn.
46 Zur Operation der Aneurysmen insbes. der Total Exstirpation. R. Kolb.
47 Versorgung des Bruch-Sackes bei der Radikal-Operation von Leistenhernien (inguinal hernia). Bunge.
48 Muskel Sequester nach Pneumokokken-Infektion. Paetzold.
49 Ueber ausgedehnte Mesenterial-Abreissungen bei Kontusion des Abdomens (lacerations of mesentery). R. Neumann.
50 *Klinische Beiträge zur Kenntnis der Pankreas-Nekrose. C. Boehm.
51 *Gastroenterostomie mittelst elastischer Ligatur. G. Tiefenthal.
52 *Verwendung der Killian'schen Bronchoskopie bei der Pneumotomie. E. Schefold.
53 Myxofibrom des Nervus peroneus. Custodes.

39. **Embolism of the Lung Following Laparotomy.**—Gebele reports clinical and experimental experiences which show that a large percentage of the lung affections observed after laparotomy are due to embolism. In experimenting on 40 rabbits he noted after laparotomy an embolic lung affection in 12, and an embolic pneumonia in 4. Embolism, therefore, should be regarded as an important factor in the development of lung complications after abdominal operations. About a third of the lung infarcts are followed by pneumonia. Infection is indispensable, but this may occur primarily with the embolus or may follow later. Embolic pneumonia is hemorrhagic at first, before there is abscess formation, and it is usually insular, the foci generally locating beneath the pleura. He reviews the experiences of others, especially Mikulicz' report of 143 cases of pneumonia occurring consecutive to 1,781 laparotomies, almost half of the pneumonias terminating fatally. Gebele's article issues from von Angerer's clinic at Munich, and reports 77 or 6.43 per cent. cases of pneumonia following the laparotomies between 1892 and 1902. Out of the 77 cases 14 (1.17 per cent.) were of embolic origin, and 8 were suppurative pneumonia. He was unable to detect any special connection between the nature of the operation and the embolic complications.

40. **Complicated Fractures.**—Klauber reviews the experiences at the Prague clinic (Wölfler's) during the last nine years. The proportion of cases treated conservatively is increasing every year.

43. **Differential Sign of Varix and Femoral Hernia.**—Hertle states that when the varix is compressed with the fingers

and then the compression is abruptly removed, but with the fingers still in contact, a distinct buzzing is felt similar to that felt over the thorax in certain cardiac defects.

50. **Pancreas Necrosis.**—Boehm regards gallstones as an important factor in the development of necrotic processes in the pancreas. He reports 6 new cases of necrosis of this organ, and emphasizes the necessity for prompt surgical intervention, even in the apparently hopeless cases. He describes the care necessary to prevent complications, etc.

51. **McGraw Elastic Ligature.**—Tiefenthal commends the elastic ligature, as his experimental tests with it were all pre-eminently favorable.

52. **Bronchoscopy and Pneumotomy.**—Schefold relates that a young man who presented some of the symptoms of tuberculosis was treated in a sanatorium and referred to a hospital with the diagnosis of abscess in the lung. Bronchoscopy revealed a shirt stud in the lung. The stud was removed by operation, but recovery was delayed by empyema. The bronchoscope rendered valuable services during evacuation of the abscess.

Deutsche medizinische Wochenschrift, Berlin and Leipsic.

54 (XXX, No. 52, December 22.) *New Method of Obtaining Antibodies.—Ueber ein neues Verfahren zur Gewinnung von Antikörpern. F. Loeffles.
55 *Beitrag zur Frage der appendicularen Perforations-Peritonitis nach Trauma. Henning.
56 *Wearing Out of Nervous Apparatus Without Due Repair.—Die Aufbrauchkrankheiten des Nerven-Systems. L. Edinger.
57 Influence on Action of Sunlight by Sea Water.—Ueber die Beeinflussung der Sonnenlichtwirkung durch Meerwasser. H. Leo.
58 Die Elektrotherapie der Herzkrankheiten in Verbindung mit der Nauheimer Kur (in heart disease). P. C. Franze.
59 *Protection of Wounds by Zinc Chlorid Eschar.—Schutzt der Chlorzinkschorf aseptische Wunden gegen eine Infektion mit virulenten Bakterien? P. Bröse.
60 Antikörper des Streptococcen- und Pneumococcen Immun-Serums (antibodies). E. A. Wright (London).
61 Zur Kenntnis und Behandlung des Gallensteinleidens (biliary lithiasis). H. Kober.
62 Patents of Interest to Physicians.—Technische Neuheiten aus den Gebieten der Medizin, öffentlichen Gesundheitspflege und Krankenpflege. Kalckhoff.

54. **New Technic for Obtaining Curative Sera.**—Loeffler's new method for obtaining antibodies was described in an editorial in THE JOURNAL, page 221.

55. **Appendiceal Perforation Peritonitis After Trauma.**—Henning found two fecal concretions in an appendix removed on account of peritonitis following perforation of an ulceration. The patient had been kicked in the abdomen by a horse a few days previously. The fecal concretions in the appendix were evidently old ones, the lumen between them and proximal to both being entirely obliterated, showing their age, and yet they had never caused symptoms. These fecal concretions might never have caused trouble if it had not been for the trauma.

56. **Wearing Out of Parts of Central Nervous Apparatus Without Normal Repair.**—In this third article Edinger considers the wearing out of predisposed nerves from mere functional use. The postsyphilitic affections are analyzed in detail. The anatomic lesion in these seems to be the simple disappearance of the nerve tracts and their substitution by neuroglia. This functional using up of the true nerve substance might be expected in these cases to affect principally the nerves which have most functional demands made on them, and this is what is observed in reality. Sleeping or waking, the spinal cord is constantly receiving impressions from bones, muscles, joints and skin, and the spinal cord suffers first and most. Excessive functioning can be traced in nearly every case of ataxia. It seems difficult to recognize this when a tailor, for example, suffers from ataxia of the legs, but it will probably be found that he lives in an upper story and for years has had to climb several long flights of stairs several times a day. In one instance a syphilitic had had no symptoms of ataxia, but a pedestrian tour, during which he carried a satchel, brought them on, the arm carrying the satchel being first affected and then the legs. After complete rest he recovered, but any over-exercise caused a recurrence of the ataxia. Writers have described cases of tabes without ataxia, but the subjects were women or men with sedentary occupations, none exposed to overexertion. Excessive functioning would probably bring it on in these cases also. The same is true of the postsyphilitic motor symptoms, the pupil reflexes and the disturbances in the eye muscles. Bone and joint affections are also observed from this same wearing out of the nerves without normal repair, and in this respect must be noted the possibility of mechanical destruction of the tissues, which have lost their sensitiveness from the lack of the normal protecting nerve reflexes. In confirmation of this assumption that a connection between the spinal cord and the bones is indispensable for the normal maintenance of the latter, he cites Goltz' experiments. At different sittings long stretches of the spinal cord were resected at intervals of several weeks. At each succeeding operation the vertebræ were easier to cut, until at the last they could be cut with ordinary scissors.

59. **Protection of Wounds with Zinc Chlorid.**—Bröse's researches were conducted on rabbits and demonstrated convincingly that a wound cauterized with a 50 per cent. solution of zinc chlorid is protected against infection. Even with extremely virulent infection, and when an interval of a minute had elapsed between the wound and the cauterizing, the animals were absolutely protected. Notwithstanding this his researches failed to show that zinc chlorid can be regarded as a disinfectant, even in the strongest solutions. His researches further demonstrated that the results of infection differ accordingly as the germs come in light contact with the wound or are driven forcibly into it.

Jahrbuch f. Kinderheilkunde, Berlin.

Last indexed page 510.

63 (LVIII, No. 5.) *Infantile Gastrointestinal Catarrh.—Studien über Magen-Darmkatarrh bei Säuglingen. C. E. Bloch.
64 *Ueber Pollakiurie und Enuresis im Kindesalter (in childhood). O. Reinach.
65 *Ueber Spondylitis mit bes. Berücksichtigung des späteren Verlaufs derselben (later course). A. Hugelshofer.
66 (No. 6.) Zur Kenntnis der Cerebrospinal-Flüssigkeit in einem Fall von chron. Hydrocephalus. L. Langsteln.
67 Zur Lehre von der Rachitis. F. Siegert (Strasburg).
68 *Die Hysterie im Kindesalter (in children). Bruns (Hanover).
69 *Ibid. M. Thiemich (Breslau).

63. **Gastrointestinal Catarrh in Infants.**—The findings in the cadavers of 10 infants indicated that the inflammation in the intestinal mucosa had been mainly restricted to the ileocecal valve. It rarely extended into the small intestine and then but a short distance. In the large intestine the inflammation spread more. In a few cases there was slight inflammation in the duodenum, but, as a rule, the small intestine was free from any decided inflammation. The superficial epithelium and the glands were generally in good order. Bloch's study of the subject is illustrated and the details of his material are carefully sifted.

64. **Enuresis and Pollakiuria in Children.**—When these conditions have no organic cause, Reinach refers them to a neurosis on a psychic basis as the single cause in the majority of cases. Even when hysteria is not evident in the child it can usually be traced—or alcoholism—in the parents. The enuresis may be the only symptom of hysteria, as in children this is apt to be limited to one or two symptoms. There may be merely a latent tendency to hysteria and some inciting cause may arouse it. The nervous centers that control the evacuation of the bladder seem to be especially unstable during childhood. When measures directed against hysteria fail, the condition is probably more of the neurasthenic order, and weak electric currents, hydrotherapy, tonics and country air will gradually put an end to the trouble. Local measures, such as massage from the rectum, raising the foot of the bed, etc., have not proved very successful in his hands.

65. **Later Course of Spondylitis.**—Hugelshofer observed abscesses in two-fifths of the cases of spondylitis at the Children's Hospital at Basle. There was paralysis later in 10 per cent. As this occurs predominantly in cervical spondylitis, and as two-thirds of the cases terminated fatally, this must be regarded as the most dangerous type. Amyloid deg-n-

eration occurred in about one-tenth, and tubercular complications in two-fifths of all the cases. Complete recovery was attained in only 31.3 per cent. The definite results were satisfactory so far as function was concerned, but the deformity persisted. His material includes 215 children with tuberculous spondylitis, but the final outcome could be learned only in 68. He gives the history and findings in 35 patients whom he personally examined many years after their treatment in the hospital.

68-69. **Hysteria in Children.**—Thiemich has been impressed with the number of cases of hysteric manifestations in children which are relics of a past organic affection, perpetuated by autoimitation. The manifestations are mostly the involuntary, constipation, diarrhea, anal prolapse, coughing, or something of the kind, persisting from sheer autoimitation long after the original morbid condition had been restored to normal. Hysteria in these cases is apt to be overlooked. The cure by suggestion reveals the hysteric nature of many cases of enuresis, etc. Bruns has observed 144 cases of hysteria in children in the course of seventeen years of practice as a neurologist. They form 2 per cent. of his total clientèle, and about one-fifth of his total of hysteria patients. Neither he nor Thiemich admit the possibility of hysteria in infants. His youngest patients were 3 years old. The hysteria was always more severe in boys. Only 60 per cent. of the total 144 cases were in city children. The more severe types were all in country children. In his practice, which embraces a large country district, neurasthenia is not rare, especially among farm hands. Severe hypochondria is much more frequent than in the cities and melancholic conditions are often encountered in small, remote villages. Attacks of chorea major are almost specific for hysteria in children. He has had 13 such cases and 15 of astasia-abasia. The manifestations of hysteria are generally more severe than in the hysteria of puberty or of adult life, but the classic stigmata of adult hysteria are seldom present. Cutaneous anesthesia was noted only in 3 of the children, and they were from 13 to 15 years old. In fact, these stigmata are absent in adults so often that he does not attribute so much importance to them now as formerly. The grouping of the symptoms is characteristic of hysteria, as it so frequently contradicts our knowledge of the anatomy of the parts and their relations. Any unusual or dubious morbid manifestations should suggest the possibility of hysteria whether the patient is an adult or a child. Eighty-five out of 95 children were cured. In 7 the condition persisted unmodified, and in 3 it was improved. This is a proportion of 90 per cent. cured—a much larger percentage than is obtained in the hysteria of adults. He mentions parenthetically the almost absolutely unfavorable prognosis of traumatic hysteria. In treatment he speaks of the "antihysteric atmosphere" that prevails in the establishment in his charge. The "hysteria bacillus" soon succumbs in that unfavorable environment, its downfall aided by "systematic neglect" or what he calls *"Ueberrumpelung,"* that is, taking by surprise. The latter is applied in the paralytic cases, and consists in making aggressive suggestion, hurrying the child along, giving him no chance or time for morbid ideas or memories. One rebellious case of paralysis in an intelligent girl was cured by suspension in a Sayre's sling which the assistants allowed to fall at a given signal. The girl, taken by surprise, forgot her paralysis, and he exclaimed: "See, you can stand all right; now walk!" which she did. Others were cured by a cold douche, others by electricity suddenly applied. The main point is to act rapidly, to follow up the first gain at once, and to complete the cure in a single sitting. If the child is to be used for demonstration, it is wiser to defer treatment until afterward, so as to condense all the necessary measures into a single sitting, not allowing the little patient any time to think things over. The final measures may be entrusted to an assistant.

Münchener medicinische Wochenschrift.

70 (LI, No. 52, December 27.) *Therapie der Ischias (sciatica). J. Lange.
71 Zur physikalischen Diagnostik der Pleura Exsudate. v. Tabora.
72 Akzidentelle Vakzination der Nasenschleimhaut (nasal mucosa). Lublinski.
73 Zur Kasuistik der Littréschen Hernie. P. Pfaehler.
74 Die Radikal-Behandlung des Rhinophymas durch Galvanokaustik. F. Bloebaum.
75 Die Verwendung des Balsamum peruvianum bei der Wund Behandlung (in treatment of wounds). R. Petretto.
76 Stereoscopic Radiograms of Lumbar Vertebræ and Sacrum.—Die stereoskopische Aufnahme der Lendenwirbelsäule und des Kreuzbeines mittelst Kompressionsblende. Wiesner and Dessauer.
77 Zur Frage der Häufigkeit homosexueller Vergehen (statistics of frequency of homosexual practices). Bumke.
78 (LII, No. 1.) Die Behandlung der Skoliose durch die aktive und passive Ueber-Korrektur. F. Lange.
79 Weitere Bemerkungen zur Trachom-Frage und zur Therapie chronischer Konjunktival-Erkrankungen. A. Peters.
80 *Endemisches Auftreten von myeloider Leukämie. L. Arnsperger.
81 Importance of Pawlow's Work for the Clinic of Digestive Diseases.—Die Forschungen Pawlows und ihre Bedeutung für die Klinik der Verdaungskrankheiten. E. Stadler.
82 Behandlung des Morbus Basedowii mit Antithyreoidin-Serum (Möbius). H. Hempel. Ibid. K. Thienger.
83 Eine neue Methode zur Diagnose und Therapie der Nasenerkrankungen (nasal affections). Sondermann.
84 Beitrag zur Operation des Kieferhöhlen-Empyems (maxillary sinus). F. Kretschmann.
85 *Ueber neuere medikamentös-therapeutische Bestrebungen. H. Hildebrandt.
86 Fall von traumatischer Lungenhernie ohne äussere Verletzung (without external injury). Cahen.
87 Surgeon's Case and Sterilizer.—Operation-Besteck mit Einrichtung zur Sterilisation von Instrumenten und Verbandstoffen. H. Küttner (Marburg).
88 Karl Koester. Obituary.

70. **Treatment of Sciatica.**—Lange describes a modification of the injection treatment of sciatica which has given surprisingly fine results in his hands. To date he has applied it in only 11 cases, but the results have been so favorable that he does not wait for further confirmation. In one case a patient during seven weeks of frantic pain had been able to sleep only under the influence of morphin. Since a single injection by the technic described he has had no trace of the sciatica. One patient was a working man who for four months had suffered from sciatica and atrophy of the leg, and was only able to limp with a cane. In less than forty-eight hours he was entirely relieved and walked normally. The results were similarly perfect in 6 cases. Four other patients were essentially improved, and there was only one entire failure in the list. The latter case was distinguished by the suden onset and severity of the attacks of sciatic pain. The technic consists in the injection of from 70 to 100 c.c. of a solution of 1 per 1,000 beta eucain in 8 per 1,000 salt solution. The needle is inserted through the muscle down to the sciatic nerve at its point of emergence from the sacro-sciatic foramen. There is no pain as the needle passes through the muscle, but the patient jumps the moment the nerve is touched. The pain is instantaneously deadened by the eucain injected. The patient is told not to lie on that side for a few hours. Except for a slightly painful sense of pressure, the sciatic affection is banished at one stroke in some cases, but a second injection may be required in others. Notwithstanding the small amount of eucain used—not more than from .1 to .15 gm.—sometimes slight, transient signs of intoxication were manifested. There was slight nausea and in one case transient loss of appetite for nearly three days. Lange also noticed that the taste was dulled for from one to three hours in some instances. No alarming symptoms of any kind were apparent in any case. In a few cases he observed distinct rise of temperature, never above 38.9 C., with a chill in one neurasthenic subject. He ascribes this temperature to an aseptic reaction to the mechanical lesion. He advocates trial of this method after failure of other measures. Its simplicity and harmlessness commend it for general adoption. The eucain is probably soon swept away and the permanent benefit derived must be due to the changes in the condition of the parts induced by the injected fluid, similar to the benefit derived from stretching the nerve.

80. **Endemic of Myeloid Leukemia.**—Arnsperger writes of 11 cases of myeloid leukemia which all occurred within a few years in a small district of six villages along the Enz river. One of the cases was observed at Pforzheim, a little farther down the river. One village had 3, two had 2 and the others 1 each. No family antecedents could be discovered, except in

one case, in which a younger sister had died of leukemia. The subjects were 5 women, 4 men and 2 children, some of the men farmers, others factory hands. Direct contact could not be demonstrated in any case. The district has had several epidemics of typhoid, but the sanitary conditions have been improved of late years. Spring water is used in the villages, but not the same spring by any of the families affected. A history of typhoid was established in 3 cases, and in one the enlargement of the spleen had not subsided. In another case death followed rupture of the spleen, although the symptoms of the rupture had entirely subsided. Five of the cases were very carefully observed, all in 1903 or 1904. The others are known only from the communications of the attending physicians. The latter group was distinguished by the excessively large spleen.

85. **Efforts in the Line of New Drugs, Organ Extracts, Etc.**—Hildebrandt is privat docent for pharmacology and forensic medicine at Halle, and in this opening lecture he reviews some of the tendencies of the day in pharmacology. He refers to the evils of proprietary medicines, the custom of rebaptizing old remedies with new names, and the various devices of manufacturing chemists to protect their products. The idea of having all new remedies tested in a government institute before they are allowed to be offered in the market was discussed at the Naturforscher Congress in 1901, but met with strenuous opposition. The experts employed by the manufacturing chemists in Germany are under contract not to publish anything without its passing through the "office." Consequently any unfavorable features in their reports in regard to the drugs they are testing are liable to be struck out before the report reaches the public. The lecturer urges physicians to write in their prescriptions the scientific name of the substances as given in the pharmacopeia, for example, "theobromin, natrio-salicylic," instead of the same substance under its protected name of diuretin. The price of the patented article is much higher than that of the former. The German authorities have long recognized this, and have ordered physicians in their practice among the poor and the sickness insurance societies (*Krankenkassen*) to prescribe medicines by their scientific name, not the proprietary articles. Hildebrandt wants to have more of the proprietary drugs included in the pharmacopeia under their true scientific name. He advocates that the protection of a patented name should be granted only to those drugs that are made by a patent process. A pharmaceutic preparation should never be given a patent. Another point which he mentions is that the experts testing the proposed new drugs are liable to be compelled to use certain animals for their tests which react more favorably to the proposed drug than others. He mentions a specific instance of this from the history of theocin. Cats were used for the tests and the results published to demonstrate the harmlessness of the drug. Not until after two patients had been seriously injured by its use did Allard give the drug a thorough test on rabbits last year, with the result that the effect on these animals was the same as on his patients—convulsions, hemorrhages and ulcers in the stomach.

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89 (XVII. No. 48, December 1.) Inkarzeration einer Zwerchfells-Hernie (hernia of diaphragm). J. Stein.
90 *Mutual Dependence of Certain Properties of Feces.—Zur gegenseitigen Abhängigkeit einzelner Kotelgenschaften. F. Oefele (Neuenahr).
91 Modifikation bei der Herstellung der Gipshanfschiene (hemp plaster casts). H. Nettel.
92 Protection for Physician and Patient in Röntgen Treatment. —Schutz für Arzt und Patienten bei Röntgen-Behandlung. R. Stegmann.
93 *Zur Behandlung der Kolpitis mit Hefe (yeast). K. Czerwenka. (Concluded.)
94 (No. 49.) *Therapie der Gelenkstuberkulose (of joints). Mosetig-Moorhof.
95 Heilversuche an sublimatvergifteten roten Blutkörperchen. Ein weiterer Beitrag zur Kenntniss der Sublimat-Hämolyse. L. Detre und J. Sellei.
96 Zur Aetiologie halbseitiger Störungen der Schweissekretion (Hyper- und Anhidrosis unilateralis). E. Urbantschitsch.
97 Should Operations on External Genitalia Be Done During Pregnancy?—Darf man während der Gravidität am äussern Genitale operieren? R. Volk.
98 (No. 50.) *Von den Armstellungen beeinflusste Differenzen der Radialispulse bei schrumpfenden Prozessen im Thoraxraume. J. Sorgo.
99 *Untersuchungsmethoden der Leber und Gallenblase bei Cholelithiasis (examination of liver and gall bladder). F. Fink.
100 *Ein Fall von Trichobezoar im Magen. E. Ranzi.
101 *Die Radikaloperation bei tuberkulösen Ileocoecaltumoren. H. Fröhlich.
102 *Ueber die verschiedenen klinischen Formen der Prostatahypertrophie und über ihre Behandlung. G. Nicolich.
103 *Die medizinische Radiologie als selbständiger Zweig der medizinischen Wissenschaft. G. Holzknecht und R. Kienböck.
104 (No. 51.) *Ueber die operative Therapie des Mammakarzinoms und deren Dauererfolge (permanent results). T. Meibl.
105 Ueber das Quinquaudsche Phänomen. A. Levicnik.
106 Ueber Prophylaxe des Radiologen gegen Beschädigung beim Beruf (protection of radiologist). R. Kienböck.
107 *Langsamstes Narkotisieren (slowest anesthetization). O. Effertz.
108 (No. 52.) *Pathologie und Therapie der Fibromyome des graviden Uterus. E. B. v. Fernwald.
109 Ueber postoperative Parotitis. G. A. Wagner.
110 *Die Malaria-Assanierung der Aussenwerke der Seefestung Pola. O. Lenz.
111 (XVIII. No. 1.) Theory of Heredity.—Assimilation und Vererbung. (Eine energetische Vererbungstheorie.) F. Hamburger.
112 Ueber spezifische Agglutination von Streptokokken aus Scharlachanginen und extrabukkalem Primäraffekt. E. Rossiwall und B. Schick.
113 *Zur Therapie der operativen Verletzungen des Ductus thoracicus. E. von Graff.
114 (No. 2.) *Zur Aetiologie des Frühjahrskatarrhs der Conjunctiva (spring catarrh). F. Dimmer.
115 Influence of Tubercle Bacillus Toxins on Other Bacteria.—Ueber den Einfluss der Tuberkelbazillengifte auf Wachstum und Giftigkeit anderer Bakterien speziell des Bacterium coli commune. L. R. v. Korczynski.
116 *Grundlagen aus der modernen Verdauungslehre zur praktischen Verwertung der Koprologie. F. Oefele.
117 Recurring Euphorism in Case of Brain Tumors.—Ueber anfallsweise auftretende euphorische Stimmung bei Hirntumor. A. Pick.

90. **Mutual Dependence of Certain Properties of the Feces.**—Oefele believes that his experience of 1,200 different analyses of feces justifies him in making certain sweeping assertions. He publishes two tables, one of which shows the mutual relations between the solids in the feces and the content in the substances that can be extracted with ether, that is, the percentage of ethereal extracts. In the second table he shows the similar relations between the solids and the thiosinamin extract. The latter includes the albumin and allied coagulatable substances. These mutual proportional relations form a basis for the further development of scientific study of the feces, or "coprology," as he prefers to call it. His tables are based on so many hundreds of examinations that two general laws become evident from them. One is that the proportion of ethereal extract keeps within narrow limits when the proportion of solids is high, while the figures vary widely with a low proportion of solids. This occurs still more noticeably with the thiosinamin extract. The percentage of this extract, which includes the coagulatable substances, ranged from 2 to 50 per cent. in the feces with less than 10 per cent. solids, while the range grew less and less as the proportion of solids was higher. The average may be traced on the tables as 7.5 per cent. albumin for 10 per cent. solids, and .5 per cent. with 50 per cent. solids. The average for the ethereal extract is about 21 per cent. with 21 per cent. solids.

93. **Yeast in Local Treatment of Gonorrheal Vaginitis.**—Czerwenka states that 22 were favorably influenced by the applications, but only 10 were cured, and only 4 were cured by yeast in its pure state. The majority of the cures were in cases of gonorrhea.

94. **Treatment of Tuberculous Joints.**—Mosetig claims that he was the first to inject iodoform into a tuberculous knee. This was in 1879. He emphasizes that the only true healing of a tuberculous joint process consists in the substitution of osteoid substance for the focus. This aim is artificially realized by excision of the diseased tissue and plugging the cavity with iodoform filling. He has had occasion since 1899 to treat 537 cases of tuberculous affections of the joints, and has followed this technic in all except the cases that were past all relief. The details have been given in THE JOURNAL as Mosetig-Moorhof has published them. Mutilating operations were done in 137 cases, as they were

seen too late for conservative treatment. In 29 of the patients the process was too advanced for any intervention. About 371 patients were treated with resection followed by pouring his iodoform filling into the cavity. This list includes 67 children under 10. All were cured and dismissed in a relatively short time with completely healed wounds and usable limbs. Owing to the infectious nature of the tubercular focus, the danger of its spread should impose its prompt removal as the only rational means of treatment. (See 16 above.)

98. **Significance of Differences in Radial Pulse as Arm is Raised.**—Sorgo is physician in chief to the sanatorium at Alland. He noted in certain of the inmates that the radial pulse in one arm differed from that of the other as the arms were raised or lowered. Comparison of the findings with the known anatomic and physiologic conditions has shown that this difference is due to some pathologic process involving the apex. In a case of endothelioma of the pleura the radial pulse was much stronger on the sound side when the arms were hanging, but this difference vanished as both arms were raised above the head. This vanishing of the difference as the arms are brought into certain symmetrical positions excludes the possibility that the phenomenon is due to anything abnormal in the origin or course of the vessels involved. He has examined 398 patients for this sign, and 31 were found who showed these differences in the radial pulse influenced by the position of the arm. In 10 patients, the difference was marked, but vanished as the arms were raised. In one patient the radial pulse became stronger as the arms were raised above the head, strongest on the left side. In 10 patients there was no difference in the radial pulse as the arms hung down, but a difference became evident as the arms were raised. In 6 there was no difference as the arms hung down, but when they were raised the pulse became very weak, and showed a great difference. In 5 others the difference was marked all the time, but became still more pronounced as the arms were raised vertically. It was instructive to see in some of the cases how this difference in the radial pulse developed under the physician's eyes as the pathologic process in the lungs progressed. The difference noted is probably due to adhesion of the pathologic apex to the subclavian artery. As the arm is raised, the traction on the vessel from the adhesions is corrected as the parts are brought into other positions, and the pulse becomes alike in both arms. A difference in the pulse, therefore, in a case of tuberculosis may be accepted as a sign that retraction of the lung is commencing or has continued for some time.

99. **Physical Investigation in Cholelithiasis.**—Fink's experience at Carlsbad has shown that 66 per cent. of gallstone cases are accompanied by icterus. This emphasizes the necessity for examination of the liver in such cases. Better information is derived when one hand is placed at the back and the liver is pushed up from below toward the palpating fingers of the other hand applied to the liver in front. The hand underneath should not exert an even pressure on the liver, but should push it up in a series of light, gentle upward movements. The special ways to hold the fingers and to take advantage of all the possible findings, even in very corpulent subjects, are described in detail.

100. **Hair Ball in Stomach.**—Ranzi recently had occasion to remove a concretion of hair, threads and rubber bands from the stomach of a young woman. The concretion nearly filled the stomach and duodenum down to the ascending portion, and when removed presented a perfect cast of these organs, weighing after drying, 440 gm., and measuring 22 cm. in the stomach and 44 cm. in the duodenum or 66 cm. in all, about 24 inches. He has found in the literature 15 similar cases, 11 of which were operated on, with the recovery of all but one of the patients. The symptoms in the present case were referable to the stomach, and there was a history of the passage by rectum of a hair ball four years before, and a habit of swallowing hairs, threads, etc., since childhood. The movability of the tumor also aided in the differentiation. One surgeon removed a hair ball through a lumbar incision.

101. **Radical Operation for Tubercular Ileocecal Tumors.**—Fröhlich has removed an ileocecal tumor in 3 cases, with recovery of 2 of the patients. In one case the affection was evidently primary; in the others it probably originated from swallowed sputa, the primary lung process not being very far advanced. Complete removal of a primary tumor is urgently indicated, and, even in the secondary cases, it is indicated likewise, as the primary focus is liable to heal. This was the satisfactory result in one of his cases. In the fatal case, death resulted from gangrene of an adjacent loop of intestine, after the resection of the tumor.

102. **Treatment of Hypertrophied Prostate.**—Nicholich's success in treating a case of complete retention from hypertrophied prostate was described, with his technic, on page 2,005 of the last volume of THE JOURNAL. He has only one patient still alive and healthy out of 10 prostatics operated on by other technics; all the others succumbed to acute or chronic pyelonephritis. His new technic consists in transvesical prostatectomy, after which the bladder is distended with a large amount of iodoform gauze packed in and left for two or three days. This prevents too rapid retraction of the bladder, compresses the walls and thus prevents hemorrhage, while it ensures antisepsis and drains away the urine as soon as it accumulates. He here reports a second case operated on by this technic. The patient's bladder reached above the umbilicus, and he was rapidly restored to health by the operation described.

103. **Medical Radiology as a Separate Branch of the Medical Sciences.**—This article was presented by Holzknecht and Kienböck to sustain their plea for a separate chair for radiology in the medical faculty. Their request was granted, and Vienna is the first city to have special instruction in medical radiology. The two authors were duly appointed instructors in the new branch.

104. **Operative Treatment of Mammary Cancer.**—Meissl reviews the 247 cases of mammary cancer operated on at von Eiselsberg's clinic at Vienna. About 18 per cent. of the patients were permanently cured. The comparative value of the various methods of operating can be determined only by reference to the stage in which the operation was undertaken. As a measure for comparison, he suggests that the percentage of patients who succumb to internal metastasis after an operation, without local recurrence, might prove useful as a criterion for determining the actual comparative value of various technics. The proportion of permanent cures with the Volkmann technic was much higher than with the Heidenhain, and approaches closely that obtained by Halsted.

107. **Slow Chloroforming.**—Effertz has observed in Mexico a mode of administering chloroform which was free from the slightest trace of the stage of agitation and nausea. A few drops of chloroform were poured on a cloth and held at a distance of about four inches from the patient's face. The chloroform was renewed from time to time, and the patient was ready for the operation in two or three hours. This length of time was required before the narcosis was complete. Nearly ten ounces of chloroform were used in each case.

108. **Fibromyomata in Pregnant Uterus.**—Fernwald analyzes his results and the findings in 6 cases of pregnancy in a myomatous uterus. In one instance a living child was extracted with forceps, notwithstanding the existence of a myoma as large as a child's head. The mother recovered. In another case conservative myotomy during the third month did not interfere with the normal course of the pregnancy. In 2 others, good results were obtained by supravaginal amputation of the myomatous uterus during the fourth month. In the 2 others, the mothers recovered with living children after conservative cesarean section with myomotomy at normal term. He discusses the views of other writers on the subject, and the indications offered in individual cases.

110. **The Stamping Out of Malaria at Pola.—Lenz** con-

tinued last year his efforts to stamp out malaria at certain points on the Austrian shore of the Adriatic, described in these columns a year ago. The results confirm the possibility of eradicating the disease in a protected zone in the midst of a hotbed of malaria, and keeping that zone free from its reimportation.

113. **Injuries of Thoracic Duct.**—Graff calls attention to the fact that 75 per cent. of the 26 cases of operative injury of the thoracic duct on record resulted in recovery when the duct was ligated, with or without suture. On the other hand, only 19 per cent. recovered out of those treated by tamponing alone. A ligature can be thrown around the thoracic duct in the neck without the slightest injurious consequences for the organism in general.

114. **Etiology of Spring Catarrh of the Conjunctivae.**—Kreibich reported last year several cases of summer eruptions in which the eyes showed the condition of spring catarrh at the same time as the skin developed the summer prurigo or *hydroa vacciniforme*. He proclaimed then that the findings in the eyes suggested the probability that they were due likewise to the action of sunlight. Dimmer treated a recent severe case on this assumption. The patient was a young man, a miller, who presented a typical bulbar catarrh, with exacerbations during the summer, not entirely subsiding through the cold months. One eye was covered with a black bandage, and under this the eye recovered its normal aspect in two weeks, except for a slight congestion of the bulbar conjunctiva. Special spectacles were then worn which protected the eyes completely against sunlight while not interfering with the lids or access of air, and the patient has since been permanently cured. Dimmer reviews the literature to determine the geographical distribution of spring catarrh. It seems to harmonize with the assumption of the importance of sunlight in its etiology, or, at least, does not contradict it.

116. **Modern Theories in Regard to Digestion.**—Oefele's previous communications on the scientific analysis of the feces have been mentioned in these columns. (See 90 above.) He here comments on the multiplicity of the processes that occur on the long route from the mouth to the anus, the action of teeth, mouth, throat, gullet, stomach, etc., and the secretions of the various glands and organs on the way. In our study of these various processes we must not forget to study the digestive function as a whole. Coprology must learn the composition of the feces under all kinds of normal conditions, and study all the influences which are liable to disturb its average composition, before it is possible to detect the pathologic conditions and base treatment on their indications.

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118 (XXXIV, No. 12.) Die pathogenen Trypanosomen des Menschen und der Tiere. A. Carini.
119 (No. 13.) *Ueber funktionelle Nierendiagnostik (kidney tests). H. Wildbolz.
120 *Elimination of Chloroform by Vomiting.—Ausscheidung von Chloroform durch den Brechakt. Gelpke.
121 *Congenital Heart Affections.—Zur lehre von den angeborenen Herzkrankheiten. H. Müller. (Commenced in No. 13.)
122 (No. 14.) Die Identifizierung der Tuberkel-Bazillen bei Mensch und Tier. W. Silberschmidt.
123 Zur Kenntnis der primären Peritonitis im Säuglingsalter (in infants). E. Dobeli.
124 (No.15.) *Zur Frage der chirurgischen Behandlung der chronischen Nephritis. Gelpke.
125 Beiträge zur Pathologie des Scharlachs (scarlet fever). H. Naegeli.
126 (No. 17.) Intervals in Infant Feeding.—Ueber grosse Pausen in der Säuglingsernährung. E. Dobeli.
127 (No. 18.) Tests of Kidney Functioning.—Ueber den Harnscheider von Luys und die Ausscheidung von Indigokarmin durch die Nieren. F. Suter.
128 Significance of Albuminuria in Children.—Die Bedeutung der Albuminurie im Kindesalter. G. Rheiner. (Commenced in No. 16.)
129 (No. 19.) *Behandlung der Varicen durch die Ligatur und die künstliche Thrombose. Tavel.
130 Die Prognose der traumatischen Neurosen. Huguenin.
131 Spontaneous Subsidence of Cancer on Neck.—Merkwürdiges Verschwinden einer krebsartigen Geschwulst im Halse. T. Zangger.
132 (No. 20.) Ueber das Wesen der Röntgenstrahlen und der Radioaktivität. E. Sommer.

119. **Functional Kidney Tests.**—In Wildbolz' experience, determination of the freezing point of the urine invariably gave results which corresponded in every respect with those of other functional tests and with clinical experience. He describes the details of his most instructive cases. Catheterization of the ureters was always able to locate the site of the lesion, which it would have been impossible to determine by any other means at his command. The freeezing point of the urine then revealed whether the other kidney was functioning normally. The results of the operation, both immediate and remote, invariably confirmed the findings.

120. **Elimination of Chloroform by Vomiting.**—It is Gelpke's practice to promote vomiting after most operations requiring chloroform narcosis. He is convinced that this is an important means of elimination of the chloroform. He has the subjects drink copiously of chamomile tea, and observes that the discomfort following the narcosis is much more fleeting when the vomiting is free and unchecked. In 22 cases in which the chloroform narcosis lasted from 20 to 60 minutes, the test for chloroform was always positive. He filters the vomitus and adds a drop of anilin and a little caustic soda, then heats to the boiling point. In the presence of chloroform, there is an unmistakable, pungent odor of isonitrit. This test was devised by Bunge of Basle, and is very accurate and sensitive. The vomitus must be kept in an air-tight receptacle until the test is applied to prevent evaporation of the chloroform.

121. **Congenital Defect in the Septum of the Ventricles.**—Müller has had a case of congenital defect in the interventricular septum under observation for nineteen years. There has been apparently no disturbances from the defect, not even during a pregnancy. In 8 other cases, the subjects have been seen constantly at intervals for from three to twelve years. The defect in the septum was unmistakably apparent by the physical signs, but there was no cyanosis, and the general health of the subjects did not appear to suffer from this cause. In 2 cases, the diagnosis of persistent ductus arteriosus had been made during life, but examination after death revealed an opening in the interventricular septum. In all these cases the auscultation findings were characteristic, a long, loud, clear bubbling or blowing murmur which terminated with the diastolic sound without any interval. The murmur is characteristic of a jet being forced through a narrow opening under great pressure. A murmur of such loud, rough, rasping quality is never encountered in mitral incompetency nor in case of congenital pulmonary stenosis. It resembles more the murmur frequently heard in case of aortic stenosis. It never had a musical character, but was sometimes audible at a distance of several centimeters. Simultaneously with the murmur, the systolic sound is louder, heard when the ear is slightly raised from the stethoscope. The maximum of the murmur is heard over the left margin of the sternum, below the third rib, exactly over the defect in the septum of the ventricles. In 2 instances it was also loud in the right second interspace. As the murmur is so loud it is audible over the mitral and pulmonary or aortic areas, but its maximal point does not correspond with that of either of these. With a single exception, a fine systolic thrill was felt at the point where the murmur was the loudest. In one instance, the thrill was felt also in the second right interspace, in another above the sternum and along the right margin of the sternum below the third and fourth ribs. Another characteristic point is the long stationary persistence of the physical signs. Both sides of the heart are liable to become somewhat enlarged in the course of time. In one of his cases he was able to diagnose dilatation of the pulmonary artery, confirmed by radioscopy, but mistakenly accepted this as a sign of persisting ductus arteriosus. Dilatation of the pulmonary artery was found postmortem in 4 cases on record, and of the pulmonary artery and aorta in 2 others. Eight of his 9 cases were females, and all presented the aspect of good health. In 3 cases severe pulmonary disease developed, in the course of which pronounced cyanosis became manifest, as also in a case of a complicating heart affection. In his patients, the congenital defect was noted

at birth or soon after, and in none was there any record of preceding disease, either of the child or of the mother during pregnancy. The practical importance of a correct diagnosis is in regard to the prognosis. This form of congenital defect does not appreciably shorten life. His oldest patient is now 28 and perfectly healthy. A number of cases are on record in which the subjects were 40 or more, and Roger's one female patient, among his 5 cases, was a woman of 50, who had borne four children. The congenital heart defect had been recognized in her case almost immediately after birth.

124. **Surgical Treatment of Chronic Nephritis.**—Gelpke describes a case in which he applied to chronic nephritis the same principles which underlie the Talma operation for cirrhosis of the liver. This was in October, 1901, and he had heard nothing of Edebohls' work in this line at the time. He adds that Sahli ten years ago proposed surgical treatment for a case of chronic nephritis, and the operation was done by Kocher, under his directions. The results were negative. Gelpke proceeds differently from Edebohls, his idea being to imitate the Talma technic of omentopexy, removing the capsule and supplying new vessels for the circulation over the entire surface of the diseased kidney. The attempt is made to supply a continuous free channel for the circulation of the blood. The omentum was used to make a new envelope for the kidney. The idea was suggested by the conditions noted in case of torsion of an ovarian tumor. The arrest of the circulation by the torsion causes alarming symptoms, but these subside as the peritoneum becomes adherent to the tumor and ample circulation thus becomes ensured. The results in the case thus operated on were excellent, as also in a second, quite recent case. Research on the cadaver and on dogs further corroborated the benefits to be derived from this operation, and its comparative harmlessness. In his last case, the albuminuria has dropped from 5 per 1,000 to .5 per 1,000 already. He adds that if we are able to cure by surgical interference even from 30 to 40 per cent. of the cases operated on, we should regard this as a great achievement in Bright's disease. It is especially indicated in certain cases of contracted kidney, and above all, in the severe congestion with oliguria entailed by certain cardiac defects.

129. **Treatment of Varices by Ligature and Artificial Thrombosis.**—Ligature of the saphena, with or without resection of the vein, has a record of one death from embolism in 500 cases, besides a number of cases in which thrombosis occurred. The latter is regarded as a disagreeable complication by most authors, and advice is given how to avoid it. Tavel takes the opposite view, and asserts that thrombosis should be promoted, as it is an effectual barrier against recurrence later. He advises applying the ligature high on the limb, above the knee when the leg alone is involved, and near the junction with the femoral when the varices are on the thigh. The ligature is only the preliminary, the essential feature of the treatment being the obliteration of the vein by the spontaneous or the induced thrombosis. Double ligature and resection of the vein are superfluous, unless subcutaneous ligature is impossible for any reason, such as great corpulence. Search should be made for a parallel vein, which is frequently encountered, and this should be likewise ligated. After application of the ligature, if there are no signs of spontaneous thrombosis by the end of two days, he proceeds to induce artificial thrombosis by injecting 1, 2 or 3 syringefuls of 5 per cent. solution of carbolic acid into the segment of the vein which it is desired to obliterate. By the next day thrombosis has occurred. Several points can be treated at once. In one of his cases he made 39 injections in the course of eighteen days. He first treats all the varices visible when the patient reclines. In a week or two he makes a few injections in the varices which become visible in the erect position. The reaction is merely local, never febrile. The injections can be made every two or three days or daily if the inflammation is not very severe. The patient can be allowed to get up much earlier than with other technics, and there is no necessity for elastic stockings or other devices afterward. The injections sometimes are painful for a minute or two, but not in every case. He gives the details of 4 cases thus treated, and in conclusion recommends ligature of the saphena as the best means of treating phlebitis. In 4 cases of phlebectasia the patients were rapidly cured by this means, the ligature being always applied above the lesion. Embolism need not be feared as the ligature obviates danger from this source.

Books Received.

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

BACTERIOLOGY AND SURGICAL TECHNIC FOR NURSES. By Emily M. A. Stoney, Superintendent of the Training School for Nurses, St. Anthony's Hospital, Rock Island, Ill. Second Edition, Thoroughly Revised and Much Enlarged. By Frederick R. Griffith, M.D., Surgeon, Fellow of the New York Academy of Medicine. Fully Illustrated. Cloth. Pp. 278. Price, $1.50 net. Philadelphia, New York, London: W. B. Saunders & Co. 1905.

MANUAL OF GYNECOLOGY. By D. Berry Hart, M.D., F.R.C.P.E., F.R.S.E., Lecturer on Midwifery and Gynecology, School of the Royal College, Edinburgh, and A. H. Freeland Barbour, M.A., B.Sc., M.D., F.R.C.P.E., F.R.S.E., Lecturer on Midwifery and Diseases of Women, School of the Royal Colleges, Edinburgh. With 12 Lithographs and 359 Woodcuts. Sixth Edition. Cloth. Pp. 736. Price, $6.00. Chicago: W. T. Keener & Co. 1905.

ATLAS AND EPITOME OF OPERATIVE OPHTHALMOLOGY. By Dr. O. Haab, of Zürich. Edited, with Additions, by George E. de Schweinitz, M.D., Professor of Ophthalmology in the University of Pennsylvania. With 30 Colored Lithographic Plates and 154 Text Cuts. Cloth. Pp. 377. Price, $3.50 net. Philadelphia, New York, London: W. B. Saunders & Co. 1905.

PRINCIPLES OF PHYSIOLOGICAL PSYCHOLOGY. By Wilhelm Wundt, Professor of Philosophy in the University of Leipsic. Translated from the Fifth German Edition (1902) by Edward Bradford Titchener, Sage Professor of Psychology in the Cornell University. Vol. I. With 105 Figures in the Text. Cloth. Pp. 345. Price, $3.00. New York: The Macmillan Co. 1904.

AN INTRODUCTION TO PHARMACOGNOSY. By Smith Ely Jelliffe, Ph.D., M.D., Professor of Pharmacognosy and Instructor in Materia Medica and Therapeutics in the Columbia University (College of Physicians and Surgeons), New York. Fully Illustrated. Cloth. Pp. 265. Price, $2.50 net. Philadelphia, New York, London: W. B. Saunders & Co. 1904.

TWENTY-SEVENTH ANNUAL REPORT OF THE STATE BOARD OF HEALTH OF THE STATE OF CONNECTICUT, for the Year 1904, with the Registration Report for 1903 Relating to Births, Marriages, Divorces and Deaths. Printed by Order of the Legislature. Cloth. Pp. 296. New Haven: The Tuttle, Morehouse & Taylor Co. 1905.

LIFE INSURANCE EXAMINATIONS. A Manual for the Medical Examiner and for All Interested in Life Insurance. By Brandreth Symonds, A.M., M.D., Medical Director Mutual Life Insurance Co. of New York. Cloth. Pp. 213. Price, $1.00. New York and London: G. P. Putnam's Sons. 1905.

THE INFLUENCE OF GROWTH ON CONGENITAL AND ACQUIRED DEFORMITIES. By Adoniram Brown Judson, A.M., M.D., Orthopedic Surgeon to the Out-patient Department, New York Hospital, 1878-1903. Profusely Illustrated. Cloth. Pp. 276. Price, $2.00. New York: Wm. Wood & Co. 1905.

THE AFTER-TREATMENT OF OPERATIONS. A Manual for Practitioners and House Surgeons. By P. Lockhart Mummery, F.R.C.S. Eng., B.A., M.B., B.C. Cantab., Hunterian Professor, Royal College of Surgeons. Second Edition. Cloth. Pp. 240. Price, $2.25. New York: Wm. Wood & Co. 1905.

GUIDE TO THE EXAMINATION OF THE THROAT, NOSE AND EAR, for Senior Students and Junior Practitioners. By William Lamb, M.D., C.M. Edin., M.R.C.P. Lond., Honorary Surgeon, Birmingham Ear and Throat Hospital. Cloth. Pp. 152. Price, $1.75. New York: Wm. Wood & Co. 1905.

PRACTICAL MANUAL OF DISEASES OF WOMEN AND UTERINE THERAPEUTICS. By H. Macnaughton-Jones, M.D., M.Ch., Master of Obstetrics (Honoris Causa), Royal University of Ireland. Ninth Edition. Cloth. Pp. 1,044. Price, $5.50. New York: Wm. Wood & Co. 1905.

MALIGNANT DISEASE OF THE LARYNX (Carcinoma and Sarcoma). By Philip R. W. De Santi, F.R.C.S., Surgeon to the Throat, Nose and Ear Departments, Westminster Hospital. Cloth. Pp. 104. Price, $1.50. New York: Wm. Wood & Co. 1905.

A TEXT-BOOK OF LEGAL MEDICINE. By Frank Winthrop Draper, A.M., M.D., Professor of Legal Medicine in Harvard University. Fully Illustrated. Cloth. Pp. 573. Price, $4.00 net. Philadelphia: New York, London: W. B. Saunders & Co. 1905.

TRANSACTIONS OF THE MEDICAL ASSOCIATION OF THE STATE OF ALABAMA (The State Board of Health), Organized 1847—Meeting of 1904, Mobile, April 19-22. Cloth. Pp. 580. Montgomery: Brown Printing Co. 1904.

SURGERY OF THE PROSTATE, PANCREAS, DIAPHRAGM, SPLEEN, THYROID AND HYDROCEPHALUS. A Historical Review. By Benjamin Merrill Ricketts, Ph.B., M.D., Cincinnati. Cloth. 1904.

FOURTEENTH ANNUAL REPORT OF THE STATE BOARD OF MEDICAL EXAMINERS OF NEW JERSEY, 1904. Paper. Pp. 48. Trenton, N. J.: MacCrellish & Quigley. 1904.